PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of	
John C. Harvey and James W. Cuddihy	Examiner: WEAVER, S.
Serial No. 08/472,980	Group Art Unit: 2742
Filed: June 7, 1995	Atty. Docket. 05634.0353
For: SIGNAL PROCESSING APPARATUS AND METHODS	

BOX: ISSUE FEE - AMENDMENT

Assistant Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

I. REQUEST TO ENTER AMENDMENT AFTER NOTICE OF ALLOWANCE AND AFTER PAYMENT OF ISSUE FEE UNDER 37 C.F.R. § 1.312(A)

This amendment after the notice of allowance and payment of the issue fee is submitted in response to the interviews on June 16th, July 1st and 15th, 1999 and per request of the Examiners of the PTO. Applicants respectfully request that the following amendments be considered and entered into the above-captioned application and the claims be permitted to issue:

In the Claims:

In claim 5, line 13, before "customer" please delete "an" and insert –a–.

11. (Three Times Amended) A method of controlling at least one of a plurality of receiver stations, each of which (i) includes a mass medium program receiver for receiving a mass medium program which comprises audio, a signal detector, and at least one of a computer and a processor, (ii) is adapted to detect the presence of at least one control signal that does at least one of (a) selects and (b) executes operating instructions associated with mass medium programming, said mass medium programming one of completing and supplementing said mass medium program, and (iii) is adapted to input a subscriber reaction to an offer communicated in said mass medium program, said method comprising the steps of:

(1) receiving an instruct signal at a transmitter station;

(2) delivering said instruct signal to a transmitter at said transmitter station, said instruct signal being effective at said at least one of said plurality of receiver stations to store said operating instructions;

(3) receiving, at said transmitter station, [one of a code and a datum] an identifier that designates one of said instruct signal and said subscriber reaction to said offer communicated in said mass medium program;

(4) receiving said at least one control signal at said transmitter station;

(5) delivering said [one of said code and said datum,] identifier and said at least one control signal to said transmitter at said transmitter station; and

(6) transmitting said instruct signal, said [one of said code and said datum,] identifier and said at least one control signal from said transmitter station.

12. (Twice Amended) The method of claim 11, wherein at least one of said at least one control signal and said [one of said code and said datum]

identifier is embedded in one of a television signal and a signal containing a television program.

II. REMARKS

A. Summary of Amendments to the Claims

Claims 5, 11, and 12 are amended. Claims 2-31 are pending in the application. It is proposed herein to amend claim 5 to correct a minor grammatical error. As suggested by the Examiner in the interview held July 15th, 1999, claim 11 and 12 herein are amended to replace the phrase "one of a code or datum" with the term "identifier." As discussed at the interview, this amendment is intended to clarify the claim language in light of the specification. Applicants respectfully submit that the amendments presented herein include no new matter and raise no new issue for consideration by the Examiner.

B. General Overview and Summary of Applicants' 1987 Disclosure

While the Examiners suggest that Applicants' 1987 disclosure may appear to contain a series of isolated examples, Applicants maintain that their examples are carefully tied together. An essential feature of Applicants' disclosure in the specification is that they explain their invention and the various embodiments thereof and their interrelationship. The following description provides the complete context of the disclosure, illuminating important timing and error correction considerations and explaining the interrelationship of Applicants' full system.

One clear series of teachings is focused around the "Wall Street Week" combined image of Fig. 1C. A first part of this image is received in a television signal. Fig. 1B shows this first part. A second part, Fig. 1A, is generated at the

viewer station by processing data, which exists at the viewer station, in response to control instructions which are detected in the television signal. In a section entitled "One Combined Medium" (pages 19-28) at the beginning of the Description of the Preferred Embodiments, a sequence of events associated with the display of Fig. 1C is disclosed. A first series of instructions invoke broadcast control (defined at page 23 lines 24-26), which includes clearing video RAM. A second series of instructions construct the Fig. 1A image at video RAM. The Fig. 1B image is received in the "Wall Street Week" program, and is explained by the program host as showing the performance of the Dow Industrials. When the host says, "And here is what your portfolio did," an instruction in the television signal executes "GRAPHICS ON" which combines the Figs. 1A and 1B images and displays Fig. 1C. After an interval of time during which corresponding personalized programming is displayed simultaneously to every properly equipped member of the "Wall Street Week" audience, an instruction executes "GRAPHICS OFF" and causes Fig. 1A no longer to be displayed. The disclosure defines "combining synch command" at page 26 lines 20-24, and explains that instructions that construct the Fig. 1A, execute "GRAPHICS ON", and execute "GRAPHICS OFF" each comprise a combining synch command. Subsequently, these are referred to throughout the disclosure as the **"first", "second", and "third combining synch commands of the 'Wall Street Week' example".**

After providing a detailed disclosure of apparatus of the invention (called "SPAM" apparatus) and of the composition of messages and message streams, four examples, between pages 108 and 248, disclose alternate ways of processing the first, second, and third combining synch commands of the 'Wall Street Week' example. These examples reference Fig. 3. Example #1 describes transferring the messages to an addressed controller and causing the controller to respond. Examples #2 and #4 disclose alternate decryption techniques whereby portions of

the message stream containing the three combining synch commands are selectively decrypted. Examples #3 and #4, which reference Fig. 3A as the controller of decoders 203 and 205C, disclose the collection of metering data (e.g., for billing purposes) and monitoring data (e.g., for TV viewership ratings) based on content of the first two combining synch commands. Each example discloses control of a sequence of events, and describes carefully how its sequence occurs within the broader context of "One Combined Medium" at pages 19-28. Specifically each of examples #1, #2, #3, and #4 elaborates on the portion of "One Combined Medium" from page 24 line 1 to page 27 line 7. In these four examples, each later example builds upon concepts disclosed and definitions provided in the earlier examples.

Example #5 (pages 248-271) focuses on functions performed by Signal Processor 200 in Fig. 3 *concurrently with* the sequence of events described in "One Combined Medium" *and at apparatus which perform* the metering and monitoring of examples #3 and #4. The first combining synch command of the "Wall Street Week" example is also processed in example #5. Example #5 introduces concepts that are subsequently used (e.g., in example #7) to teach automatic selection of programming, including the "Wall Street Week" program itself. At pages 271-278, the disclosure explains how the metering and monitoring, in particular of the first combining synch command of the "Wall Street Week" example, causes the content of recorder 16 to exceed a predetermined level which causes the Signal Processor to telephone a remote data collection station and dump the content of recorder 16 to the remote station.

Example #7, which occurs at pages 288-312 and 427-447 and incorporates concepts of example #6, teaches selection of the "Wall Street Week" program itself, interconnection of subscriber station apparatus to provide station station specific processing *alternatives* based on prestored instructions, and decryption of

the "Wall Street Week" program transmission. The disclosure teaches (e.g., page 311 lines 10-16) how this causes the station (now of Fig. 4 or Fig. 7 which are subscriber stations of the intermediate transmission station of Fig. 6) to perform the functions "One Combined Medium" and examples #1-#4.

The disclosure also cites (pages 322-333) and sites the "Wall Street Week" monitoring and metering functionalities within the extended Fig. 5 monitoring disclosed at pages 312-314.

In "Controlling Computer-Based Combined Media Operations" (pages 447-457), the disclosure teaches how the "Wall Street Week" subscriber portfolio contents and stock price data come to be up-to-date when the program begins, teaches that the Fig. 1C combining is the first of a series of overlays, teaches error detection techniques to prevent the display of incorrect or incomplete overlays, and teaches error correction techniques to enable slow viewer station computers that fall behind to catch up.

A second clear series of teachings is focused around a television spot commercial called program unit Q.

Within the disclosure of automated intermediate transmission station functionality that begins at page 324, program unit Q is introduced at page 331 lines 21-22 in a passage that teaches organizing units of prerecorded programming to play according to schedule.

Example #8 (pages 340-354) discloses that program unit Q is a television spot commercial and teaches how it is transmitted with other spot commercials from a satellite uplink to automated cable TV headends which are caused automatically to select, store, and retransmit the spot commercials at different times and on different channels.

Example #9 (pages 354-374) discloses that program unit Q is a combined medium television spot commercial and teaches how one of the automated

headends of example #8 creates and transmits according to a schedule a time specific and transmitter specific control signal with data that applies to specials and discounts in a local supermarket at the scheduled time of transmission. The relationship of examples #8 and #9 is discussed at page 355 lines 15-32.

Example #10 (pages 374-390) teaches how the automated headend (as one of a plurality of such headends each) creates the time specific and transmitter specific control signal with data and inserts the control signal into a network broadcast of combined medium program unit Q.

The subscriber station functionalities associated with both examples #9 and #10 (see page 469 line 1) are taught at pages 469-516. Each of a plurality of viewer stations creates receiver specific output in response to the control signal(s) as well as selecting viewer specific output from among the transmitted transmitter specific data. Each outputs its output in a series of time intervals of specific relevance. The relationship of pages 469-514 to pages 324-390 is explicit and unmistakable in that every disclosure (e.g., 354-374, 374-390, and 469-516) teaches a sequence of more than thirteen messages with matching names. These include, for example, the **"transmit-and-execute-program-instruction-set message"** (page 371 lines 9-10, page 385 lines 7-8, and page 484 lines 1-2) and **"program-instruction-set message"** (page 371 lines 17-19, page 385 lines 14-16, and 484 line 5). Furthermore, corresponding named ones of these messages are disclosed in each respective passage (e.g., 354-374, 374-390, and 469-516) to have functionally identical content and to cause identical functioning at the subscriber stations. The passage at page 514 lines 8-30 states this.

Having disclosed all the individual elements and procedures of their system, Applicants finish their disclosure by describing a cycle in "Summary Example #11". The cycle involves controlling the disclosed system on a large scale to interconnect and distribute information to users, create control signals,

create output in response to the control signals, display and explain the information and output, and receive and process feedback in order to repeat the cycle. Important disclosed functions such as preprogramming operating system instructions (page 537), creation of control signals (pages 541-547), creation of output for display (e.g., pages 548-551), display of the output (e.g., middle of page 552 to top of page 554), reception of feedback (pages 555-556), and distribution of new information based on the feedback (page 556) are cited in specific sequence and make clear reference to the pertinent portions of the specification that disclose these important functions.

C. Specification Support of the Claims

1. Claim 2

In a network having a receiver station (e.g., a television viewer station with control logic) and a transmitter station (e.g., for transmitting a processor control signal), a television program is displayed (e.g., reoccurring weekly program). A command is inputted (e.g., a subscriber request for a new occurrence of the weekly program which requires logical processing, such as decryption, in order to be transferred in a useable form). Based on the command, the receiver station communicates an event signal to the transmitter station (e.g., notification that the receiver station needs an additional signal or signals in order to transfer the programming in useable form). The transmitter responds by transmitting operating instructions to enable the receiver station to transfer the programming. The operating instructions program or reprogram the receiver station to respond to a processor control signal (e.g., a instruction communicated with the programming). The receiver station receives and processes the processor control signal, causing an output device (e.g., a speaker or display) at the receiver station to receive and output the programming to a listener or viewer.

Claim 2 finds support at pages 278-312 (especially 288-312) of the specification and in the passages cited below in Patent No. 4,694,490 from which the instant application claim priority.

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
A method of delivering one of broadcast programming and cablecast programming to a subscriber in a communications network,	Page 289 lines 4-15.	Said studio transmits the information of said program to a plurality of intermediate transmission stations by so-called "landline" means and/or Earth orbiting satellite transponder means, well known in the art. Each of said intermediate transmission stations receives the transmission originated by said studio and retransmits the information of said transmission to a plurality of ultimate receiver stations. In example #7, the intermediate station that retransmits "Wall Street Week" program information to the subscriber station of Fig. 4 is a cable television system head end (such as the head end of Fig. 6).
	Page 324 lines 11-17.	The stations so automated may transmit any form of electronically transmitted programming, including television, radio, print, data, and combined medium programming and may range in scale of operation from wireless broadcast stations that transmit a single programming transmission to cable systems that cablecast many channels simultaneously.
	Page 29 lines 6-15.	Said processor, 26, is configured for simultaneous use with a cablecast input that conveys both television and radio programming and a broadcast television input. At switch, 1, and mixers, 2 and 3, signal processor, 26, monitors all frequencies or channels available for reception at the subscriber station of Fig. 2 to identify available programming. The inputted information is the entire range of frequencies or channels transmitted on the cable and the entire range of broadcast television transmissions available to a local television antenna of conventional design.

said network including a transmitter station	Page 324 lines 18-21.	Fig. 6 illustrates Signal Processing Apparatus and Methods at an intermediate transmission station that is a cable television system "head end" and that cablecasts several channels of television programming.
	Page 289 line 14.	...a cable television system head end (such as the head end of Fig. 6).
and a receiver station,	Page 289 lines 22-27.	In example #7, the controller, 20, of the signal processor, 200, of Fig. 4 is preprogrammed at a particular time with particular information that indicates that the subscriber of said station wishes to view said "Wall Street Week" program when transmission of said program on cable cable 13 commences.
said transmitter station being capable of communicating a processor control signal associated with said programming,	Page 297 lines 20-29.	Subsequently, but still in the interval between said commence-enabling time and said 8:30 PM time, said program originating studio embeds in the audio portion and transmits a particular SPAM message that consists of a "01" header, execution segment information that matches said enable-WSW-programming information, particular meter-monitor information, particular 1st-stage-enable-WSW-program instructions as the information segment information, and an end of file signal. (Hereinafter said message is called the "1st-WSW-program-enabling-message (#7).")
	Page 59 lines 29-33.	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
said receiver station having an input device for inputting subscriber information,	Page 288 lines 1-20.	Finally, Fig. 4 shows local input, 225, well known in the art, which has means for generating and transmitting control information to controller, 20, of signal processor, 100. The function of local input, 225, is to provide means whereby a subscriber may input information to the signal processor of his subscriber station, thereby controlling the functioning of his personal signal processor system is specific predetermined fashions that are described more fully below. In the preferred

		embodiment, local input, 225, is actuated by keys that are depressed manually by the subscriber in the fashion of the keys of a so-called touch- tone telephone or the keys of a typewriter (or microcomputer) keyboard. As Fig. 4 shows, microcomputer, 205, also has capacity for inputting control information to microcomputer, 205, via decoder, 203, and in the preferred embodiment, microcomputer, 205, may also automatically substitute for local control, 225, in predetermined fashions in inputting control information to said controller, 20, on the basis of preprogrammed instructions and information previously inputted to said microcomputer, 205.
a processor for storing and processing subscriber data in response to said processor control signal,	Page 298 line 10 to page 299 line 27.	Receiving the "1st-WSW-program -enabling-message (#7) causes controller, 20, to execute the aforementioned load-and-run-@20 instructions, to load the 1st-stage-enable -WSW- program instructions of the information segment at particular RAM of controller, 20, then to execute the information so loaded as the so-called machine language instructions of one so-called job. Executing said 1st-stage-enable-WSW-program instructions causes controller, 20, in the predetermined fashion of said instructions, to affect a first stage of decrypting the video information of the "Wall Street Week" program transmission. Automatically, controller, 20, causes the control processor, 39J, of decoder, 30, to accept no SPAM message information from the EOFS valve, 39F. Then automatically, controller, 20, selects information of the last three significant digits of the binary information of the aforementioned unique digital code at ROM, 21; computes that particular Q quantity that is 16 less than the product of multiplying the numerical information of said digits times 256 (which is 2 to the 8th power); and selects information of those particular sixteen contiguous bit locations at the RAM associated with the control processor, 39J, of decoder, 30, that commence at the first bit location that is said Q quantity of bit locations after a particular first bit location at said RAM. At the station of Fig. 4, the preprogrammed information of said sixteen contiguous bit locations is

		decryption cipher key Ba. (In the present invention, the preferred method of preprogramming subscriber station signal processing apparatus is to preprogram each station with all authorized information but to vary the locations of the information from station to station in accordance with station specific information that varies from station to station--for example, in example #7, Ba cipher information can be preprogrammed at eight different RAM locations and the particular location that applies at any given station that is authorized with such information relates to the last three significant digits of the unique digital code of said station in the fashion of the above Q quantity computation.) Automatically, controller, 20, transfers said decryption cipher key Ba information to a selected decryptor, 224, and causes decryptor, 224, to commence decrypting any received information, using said key information and selected decryption cipher algorithm B, and outputting decrypted information to matrix switch, 258. Automatically, controller, 20, causes matrix switch, 258, to transfer the information of the aforementioned video output inputted from said tuner, 215, to the output that outputs to decryptor, 224, thereby causing said decryptor, 224, to receive the information of said video portion (said information being, as explained above, encrypted digital video), to decrypt said information, and to transfer decrypted information of said video portion to matrix switch, 258.
	In general see, page 279 line 30 to page 280 line 35.	The means and methods of the present invention for regulating reception and use of programming relate, in particular, to three features of the present invention. The computer system of the present invention has capacity at each subscriber station to compute station specific information based on preprogrammed information that exists at each station and that differs from station to station. Given this capacity, any central control station of the present invention that originates a SPAM transmission can cause subscriber station apparatus to decrypt received SPAM information in different fashions with each station decrypting its received information is its own station

		specific fashion. A central station can cause different stations to compute different station specific decryption cipher keys and/or algorithms to use in any given step of decryption or to compute station specific key and/or algorithm identification information that differs from station to station and controls each station in identifying the key and/or algorithm to use for any given step of decrypting. A second feature of the present invention is that effective SPAM processing depends on the correspondence between the transmitted SPAM information that causes processing at the subscriber stations and the information preprogrammed at the various stations that controls the SPAM processing at each station. In order for any given SPAM execution segment to invoke any given controlled function at any given station, the received binary information of said segment (for example, "010011") must match preprogrammed controlled-function-invoking information ("010011") at each station. This feature permits each station to be preprogrammed with station specific controlled-function- invoking information that differs from station to station (which means that no single SPAM execution segment could invoke a given function at all stations without first being processed at selected stations to render its information to correspond to the station specific preprogrammed invoking information of said stations). The third feature of the present invention is an extended system of means and methods for regulating the reception and use of SPAM information--including decryption key and algorithm information--that is illustrated in Fig. 4 and discussed more fully below.
a communications device for transmitting information to a remote site,	Page 33 lines 7-12.	Signal processor, 26, has a controller device which includes programmable RAM controller, 20; ROM, 21, that may contain unique digital code information capable of identifying signal processor, 26, and the subscriber station of said processor, 26, uniquely; an automatic dialing device 24; and a telephone unit, 22.
	Page 301 lines 6-30.	At each station where a match fails to occur--which indicates that a decryptor, 224,

		is not decrypting its received information correctly and suggests that the preprogrammed SPAM operating information of said station may have been tampered with--not resulting in a match causes the controller, 20, of said station to cause all information of said 1st-WSW-program- enabling-message (#7) to be erased from all memory of said station except for a particular portion of said 1st-stage- enable-WSW-program instructions loaded at the RAM of said controller, 20, then to execute the information of said portion as instructions of a machine language job. Executing said portion causes controller, 20, to cause the auto dialer, 24, and telephone connection, 22, of said station to establish telephone communications with a particular predetermined remote station, in the fashion described above, and causes controller, 20, then to transmit the aforementioned appearance-of-tampering information together with complete information of the unique digital code that identifies said station uniquely. If telephone communications are not established with said remote station in a predetermined fashion and/or within a predetermined time interval, the instructions of said portion cause said controller, 20, to erase all preprogrammable RAM and EPROM of the signal processing apparatus at said station, thereby disabling said apparatus.)
and an output device for displaying a television program, said method comprising the steps of:	Page 310 lines 6-8 and lines 22-24.	...thereby causing monitor, 202M, to commence receiving said audio information and emitting sound in accordance with said audio information. ...thereby causing monitor, 202M, to commence displaying, at its television picture tube, the information of the transmitted television image.
displaying said television program at said output device;	Page 310 lines 6-8 and lines 22-24.	...thereby causing monitor, 202M, to commence receiving said audio information and emitting sound in accordance with said audio information. ...thereby causing monitor, 202M, to commence displaying, at its television picture tube, the information of the transmitted television image.
inputting a command	Page 289 line 22 to	In example #7, the controller, 20, of the signal

at said input device;	page 290 line 3.	processor, 200, of Fig. 4 is preprogrammed at a particular time with particular information that indicates that the subscriber of said station wishes to view said "Wall Street Week" program when transmission of said program on cable cable 13 commences. (So preprogramming controller, 20, can occur in several fashions. For example, prior to a particular time, a subscriber may enter particular please-fully-enable-WSW-on-CC13-at-particular-8:30 information at local input, 225, and cause said information, in a predetermined fashion, to be inputted to controller, 20, by local input, 225. Alternately, microcomputer, 205, can be preprogrammed with particular specific-WSW information and, in a predetermined fashion that is described more fully below, caused to input said please-fully-enable-WSW-on-CC13-at-particular-8:30 information to said controller, 20.)
communicating, from said receiver station to said transmitter station,	Page 311 line 33 to page 312 line 8.	And for example, determining that a local station is not preprogrammed properly and/or that decryption, stripping, and/or signal generating apparatus are not functioning correctly may cause apparatus of said station to perform other steps of disabling and/or communicating--eg., the local apparatus ... may interrogate remote station apparatus, by telephone, for cipher key and/or cipher algorithm instructions and information.
an event signal	Event: page 311 lines 33-34, and signal: page 312 line 6.. Page 301 lines 14-23.	And for example, determining that a local station is not preprogrammed properly.... ...interrogate remote station apparatus, by telephone.... a particular portion of said 1st-stage-enable-WSW-program instructions loaded at the RAM of said controller, 20, then to execute the information of said portion as instructions of a machine language job. Executing said portion causes controller, 20, to cause the auto dialer, 24, and telephone connection, 22, of said station to establish telephone communications with a particular predetermined remote station, in the fashion described above, and causes controller, 20, then to transmit the aforementioned appearance-of-tampering information together with complete information of the unique digital code that identifies said

		station uniquely.
based on said command inputted at said receiver station;	Page 289 line 22 to page 290 line 3.	*See above.*
transmitting, from said transmitter station to said receiver station,	Page 297 lines 20-29.	Subsequently, but still in the interval between said commence-enabling time and said 8:30 PM time, said program originating studio embeds in the audio portion and transmits a particular SPAM message that consists of a "01" header, execution segment information that matches said enable-WSW-programming information, particular meter-monitor information, particular 1st-stage-enable-WSW-program instructions as the information segment information, and an end of file signal. (Hereinafter said message is called the "1st-WSW-program-enabling-message (#7).")
operating instructions associated with said programming, in response to said event signal communicated from said receiver station;	Page 298 lines 14-16. Page 312 lines 6-8.	...then to execute the information so loaded as the so-called machine language instructions of one so-called job. ...may interrogate remote station apparatus, by telephone, for cipher key and/or cipher algorithm instructions and information.
one of programming and reprogramming, on the basis of said transmitted operating instructions, said receiver station	Page 298 lines 6-16.	Executing said instructions causes said control processor, 39J, to transfer the information of said message to controller, 20, in the fashion of the local-cable-enabling-message (#7). Receiving the "1st-WSW-program-enabling-message (#7) causes controller, 20, to execute the aforementioned load- and-run-@20 instructions, to load the 1st-stage-enable-WSW- program instructions of the information segment at particular RAM of controller, 20, then to execute the information so loaded as the so-called machine language instructions of one so-called job.
to respond in a predetermined fashion to said processor control signal;	Page 278 lines 30-32.	Said means and methods involve the operation of preprogrammed cipher keys (such as keys J and Z) and cipher algorithms to decrypt transmitted information.
receiving, at said receiver station, said processor control signal;	Page 305 line 30. Page 226 lines 25-28.	...the information inputted from signal generator, 230,.... When divider, 4, commences transferring the embedded information of said second message to decoder, 203, the binary SPAM

		information of said message is received at decoder, 203;....
processing, at said receiver station, said processor control signal; and	Page 298 lines 16-21. Page 309 line 27 to page 310 line 3.	Executing said 1st-stage-enable-WSW-program instructions causes controller, 20, in the predetermined fashion of said instructions, to affect a first stage of decrypting the video information of the "Wall Street Week" program transmission. Determining that signal stripper, 229, and that signal generator, 230, are stripping and inserting correctly (after having determined that that decryptors, 224 and 231, are decrypting correctly) causes the controller, 20, of the station of Fig. 4 (and causes controllers, 20, at other stations where so determining occurs) to execute particular additional 2nd-stage-enable-WSW-program instructions, and executing said instructions causes controller, 20, to cause the apparatus of the station of Fig. 4 to commence transferring the decrypted television information of the "Wall Street Week" program to microcomputer, 205, and monitor, 202M.
causing said receiver station to receive and output said programming in accordance with said processor control signal.	Page 294 line 30 to page 295 line 7. Page 309 line 34 to page 310 line 3. Page 236 lines 1-10.	Executing the instructions of said portion causes controller, 20, in the predetermined fashion of the said portion, to cause selected apparatus of the station of Fig. 4 to receive the cable channel 13 transmission, to cause selected apparatus to decrypt the audio portion of said transmission, to cause selected apparatus to commence waiting to receive further enabling information, and to create a meter record that documents the decryption of the cable audio transmission at the station of Fig. 4. Automatically, controller, 20, causes matrix switch, 258, to cease transferring video and audio information to monitor, 202M. Then, automatically, controller, 20, causes a selected tuner, 214, to tune to the frequency of cable channel 13, ...executing said instructions causes controller, 20, to cause the apparatus of the station of Fig. 4 to commence transferring the decrypted television information of the "Wall Street Week" program to microcomputer, 205, and monitor, 202M. Transmitting the instruction, "GRAPHICS ON", to the PC-MicroKey System of the

		subscriber station of Fig. 3 (and transmitting "GRAPHICS ON" to other PC-MicroKey Systems at other subscriber stations where the program instruction set of the first message has been run at a microcomputer, 205, and where said second message causes "GRAPHICS ON" to be transmitted) causes said PC-MicroKey System to combine the programming of Fig. 1A and of Fig. 1B and transmit the combined programming to monitor, 202M, where Fig. 1C is displayed.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
A method of delivering one of broadcast programming and cablecast programming	Column 10 lines 18-20.	...a broadcast station transmitting only a single channel of programing or a cable system cablecasting many channels.
to a subscriber in a communications network,	Column 6 lines 23-30.	A signal processor apparatus for simultaneous use with a cablecast input that conveys both television and radio programing and a broadcast television input is shown in Figure 1. As shown, the input signals are the entire range of frequencies or channels transmitted on the cable and the entire range of broadcast television transmissions available to a local television antenna of conventional design.
said network including a transmitter station	Column 10 lines 24-28.	FIGS. 3A, 3B and 3C illustrates one instance of such use. Figure 3 illustrates the use of Signal Processing Apparatus and Methods at a cable television system "head end" transmission facility that cablecasts several channels of television programing.
and a receiver station,	Column 17 lines 49-53.	Figure 6 illustrates one possible configuration of equipment in a home or office or other television and/or radio receiving site.
said transmitter station being capable of communicating a processor control signal associated with said programming,	Column 13 lines 17-32.	The signals that enable the decrypter/interrupter, 101, to decrypt and/or transfer programing uninterrupted may be embedded in the programing or may be elsewhere. Signal processor, 100, identifies, evaluates, possibly decrypts, and passes a signal or signals to decrypter/interrupter,

		101, either at the time of receipt of such programing or at a delayed time or a combination. The signal or signals instruct decrypter/interrupter, 101, to decrypt the transmission or not to decrypt the transmission or to interrupt the transmission or not to interrupt the transmission. The signal or signals may also inform decrypter/interrupter, 101, how to decrypt or interrupt the programing if decrypter/ interrupter, 101, is capable of multiple means. The signal or signals may transmit a code or codes necessary for the decryption of the transmission.
said receiver station having an input device for inputting subscriber information,	Column 17 line 62 to page 18 line 4.	They might include forecast data. Signal processor, 200, is always operating and monitors all incoming channels. It can convey such signals to microcomputer, 205, whenever it receives them. TV signal decoder, 203, can also identify such signals but only in the one TV channel transferred by box, 201, to TV set, 202, and then only when TV set, 202, is on and operating. Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
	Column 13 lines 32-47.	Figure 4A also shows local input, 102, with means for generating and transmitting signals to signal processor, 00. Local input, 102, is intended to permit a person at a local receiving site that is prevented, by any means, from receiving programing to instruct signal processor, 100, that the site wants to be enabled to receive the programing. Local input, 102, may also serve other purposes. Local input, 102, may convey a continuous signal or an occassional signal or a one-time-only signal. It may be activated by one or more switches or buttons or combinations. It may be a computer acting in a predetermined fashion. The signal may be input to signal processor, 100, as described in Figure 1, at buffer/comparator, 8, or signal processor or monitor, 12, or buffer/comparator, 14.
a processor for storing and processing subscriber data in response to said processor control	Column 8 lines 32-44.	The controller, 20, can instruct signal decoders, 30 and 40, when, where, and how to look for signal words, which allows signal words to be received in any pattern or patterns. It can instruct buffer/ comparator, 8, how to

signal,		assemble signal words into signal units and join units together for further transfer and how to determine which signals to pass to decrypter, 10. It can tell decrypter, 10, when and how to change decryption patterns, fashions, and techniques. It can tell processor or monitor, 12, how to determine which signals to pass externally and when and where and how to determine which signals to pass to buffer/comparator, 14.
	Column 14 lines 54-61.	If signal processor, 112, has been preprogramed with the signal or signals or if it has been informed of the predetermined fashion for identifying and processing the the needed signal or signals in the incoming transmission from facility, 113, for example, where to look for the signals and when and how, signal processor, 112, can transfer the signal to decryptor/interruptor, 115.
a communications device for transmitting information to a remote site,	Column 8 lines 20-25.	The signal processor apparatus also has a controller device which includes programable random access memory controller 20, read only memory 21 that may contain a unique digital code capable of identifying the signal processing apparatus uniquely, an automatic dialing device 24, and a telephone unit, 22.
and an output device for displaying a television program, said method comprising the steps of:	Column 14 lines 2-9.	For example, only the video portion of the transmission may be encrypted. The audio portion may remain unencrypted. In such a circumstance, a connection such as that shown in Figure 4B could pass unencrypted signals to signal processor 103, while passing a transmission unsuitable for satisfactory viewing, if the signals were placed in the audio portion of the overall transmission.
displaying said television program at said output device;	Column 14 lines 2-9.	*See above.*
inputting a command at said input device;	Column 13 lines 40-44.	Local input, 102, may convey a continuous signal or an occassional signal or a one-time-only signal. It may be activated by one or more switches or buttons or combinations. It may be a computer acting in a predetermined fashion.
communicating, from said receiver station to said transmitter station,	Column 15 lines 20-25.	In any of the cases illustrated in Figures 4A through 4E, signal processors, 100, 103, 106, 109, and 112, could also operate in a predetermined fashion and telephone a remote site to get an additional signal or signals necessary for the proper decryption

		and/or transfer of incoming programing transmissions.
an event signal	Column 15 lines 22-23.	*See immediately above.*
based on said command inputted at said receiver station;	Column 13 lines 40-44.	*See immediately above.*
transmitting, from said transmitter station to said receiver station,	Column 15 lines 23-25.	...telephone a remote site to get an additional signal or signals necessary for the proper decryption and/or transfer of incoming programing transmissions.
operating instructions associated with said programming,	Column 5 lines 18-20.	...and a programmable random access memory controller ("PRAM controller") that permits revision of operating patterns and instructions.
	and column 9 lines 20-23.	The controller, 20, ... is interactive with external sources via telephone connection, 22, and can be reprogramed from such remote sources.
in response to said event signal communicated from said receiver station;	Column 15 lines 20-25.	In any of the cases illustrated in Figures 4A through 4E, signal processors, 100, 103, 106, 109, and 112, could also operate in a predetermined fashion and telephone a remote site to get an additional signal or signals necessary for the proper decryption and/or transfer of incoming programing transmissions.
one of programming and reprogramming, on the basis of said transmitted operating instructions, said receiver station	Column 5 lines 18-20,	a programmable random access memory controller ("PRAM controller") that permits revision of operating patterns and instructions.
	with column 9 lines 20-23.	The controller, 20, ...is interactive with external sources via telephone connection, 22, and can be reprogramed from such remote sources.
	Column 8 lines 25-42.	The controller, 20, governs the operation of all operating elements of the apparatus. The controller, 20, inputs the local oscillator, 6, a sequential pattern to select the various channels to be received by switch, 1, and mixers, 2 and 3. This then allows the channels to be diverted to the detectors, receivers, and decoders in any predetermined pattern desired. The controller, 20, can instruct signal decoders, 30 and 40, when, where, and how to look for signal words, which allows signal words to be received in any pattern or patterns. It can instruct buffer/ comparator, 8,

		how to assemble signal words into signal units and join units together for further transfer and how to determine which signals to pass to decrypter, 10. It can tell decrypter, 10, when and how to change decryption patterns, fashions, and techniques. It can tell processor or monitor, 12, how to determine which signals to pass externally and when and where and how to determine which signals to pass to buffer/comparator, 14.
to respond in a predetermined fashion to said processor control signal;	Column 15 lines 1-4.	If signal processor, 112, can identify, processes, and transfer the needed signal or signals, decryptor/interruptor, 115, can decrypt and/or transfer the incoming transmission from box, 114, satisfactorily.
	Column 13 lines 1-9.	Figures 4A through 4E illustrate methods for governing the reception of programing and the use of signal processor apparatus in these methods. All of these methods involve the use of one or more devices, of which various models exist well known in the art, for the decryption of programing transmissions and/or one or more other means for interrupting programing transmissions, also well known in the art, which may be as simple as a switch....
receiving, at said receiver station, said processor control signal;	Column 13 lines 17-32.	The signals that enable the decrypter/interrupter, 101, to decrypt and/or transfer programing uninterrupted may be embedded in the programing or may be elsewhere. Signal processor, 100, identifies, evaluates, possibly decrypts, and passes a signal or signals to decrypter/interrupter, 101, either at the time of receipt of such programing or at a delayed time or a combination. The signal or signals instruct decrypter/interrupter, 101, to decrypt the transmission or not to decrypt the transmission or to interrupt the transmission or not to interrupt the transmission. The signal or signals may also inform decrypter/interrupter, 101, how to decrypt or interrupt the programing if decrypter/interrupter, 101, is capable of multiple means. The signal or signals may transmit a code or codes necessary for the decryption of the transmission.
	Column 19 lines 14-20.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being

		cablecast on the multi-channel system. Signal processor, 200, receives this instruction from microcomputer, 205, at its processor or monitor, 12, which reacts, in a predetermined fashion by passing also externally to microcomputer, 205, all signals that it passes to buffer/ comparator, 14.
processing, at said receiver station, said processor control signal; and	Column 14 lines 54-61. Column 19 lines 20-23.	If signal processor, 112, has been preprogramed with the signal or signals or if it has been informed of the predetermined fashion for identifying and processing the the needed signal or signals in the incoming transmission from facility, 113, for example, where to look for the signals and when and how, signal processor, 112, can transfer the signal to decryptor/interruptor, 115. Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.
causing said receiver station to receive and output said programming in accordance with said processor control signal.	Column 15 lines 1-4. Column 19 lines 12-29. Column 19 line 63 to column 20 line 2.	*See above.* Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system. Signal processor, 200, receives this instruction from microcomputer, 205, at its processor or monitor, 12, which reacts, in a predetermined fashion by passing also externally to microcomputer, 205, all signals that it passes to buffer/ comparator, 14. Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week." *See above.*

2. Claim 3

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said command is a subscriber reaction to said television program.	Page 289 line 22 to page 290 line 3.	In example #7, the controller, 20, of the signal processor, 200, of Fig. 4 is preprogrammed at a particular time with particular information that indicates that the subscriber of said station wishes to view said "Wall Street Week" program when transmission of said program on cable cable 13 commences. (So preprogramming controller, 20, can occur in several fashions. For example, prior to a particular time, a subscriber may enter particular please-fully-enable-WSW-on-CC13-at-particular-8:30 information at local input, 225, and cause said information, in a predetermined fashion, to be inputted to controller, 20, by local input, 225. Alternately, microcomputer, 205, can be preprogrammed with particular specific-WSW information and, in a predetermined fashion that is described more fully below, caused to input said please-fully-enable-WSW-on-CC13-at-particular-8:30 information to said controller, 20.)

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said command is a subscriber reaction to said television program.	Column 19 lines 5-15.	In another example, microcomputer, 205 may be preinformed that a certain television program, hypothetically "Wall Street Week," should be televised on TV set, 202, when it is cablecast. Microcomputer, 205, is preinformed of the time of cablecasting. When that time comes, microcomputer, 205, receives no program identification signals whatever from TV signal decoder, 203, which indicates that the set, 202, is not on. Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.

3. Claim 4

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2,	Page 289 line 22 to	In example #7, the controller, 20, of the signal

wherein said event signal communicated from said station comprises a customer order for said programming.	page 290 line 3.	processor, 200, of Fig. 4 is preprogrammed at a particular time with particular information that indicates that the subscriber of said station wishes to view said "Wall Street Week" program when transmission of said program on cable cable 13 commences. (So preprogramming controller, 20, can occur in several fashions. For example, prior to a particular time, a subscriber may enter particular please-fully-enable-WSW-on-CC13-at-particular-8:30 information at local input, 225, and cause said information, in a predetermined fashion, to be inputted to controller, 20, by local input, 225. Alternately, microcomputer, 205, can be preprogrammed with particular specific-WSW information and, in a predetermined fashion that is described more fully below, caused to input said please-fully-enable-WSW-on-CC13-at-particular-8:30 information to said controller, 20.)

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said event signal communicated from said station comprises a customer order for said programming.	Column 19 lines 5-15.	In another example, microcomputer, 205 may be preinformed that a certain television program, hypothetically "Wall Street Week," should be televised on TV set, 202, when it is cablecast. Microcomputer, 205, is preinformed of the time of cablecasting. When that time comes, microcomputer, 205, receives no program identification signals whatever from TV signal decoder, 203, which indicates that the set, 202, is not on. Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.

4. Claim 5

In a network as in claim 2, a television program is displayed at a receiver station and a subscriber reaction to the television program (e.g., a transfer of information in the program to an addressed device) is inputted (e.g., to a transfer device). In regard to television programming, one of (1) a customer order, (2) an identification, (3) a viewership statistic, and (4) a query is communicated from the

receiver station. Operating instructions (e.g., computer instructions) are received at the receiver station (e.g., a computer) in response to the subscriber reaction. The operating instructions are stored and control the receiver station to receive and output one of (i) the television programming and (ii) information associated with said television programming (e.g., a subsequent output).

Claim 5 finds support in portions of the specification that focus on the processing and display of the "Wall Street Week" program and its Fig. 1C combining. Pertinent disclosures occur in the "One Combined Medium" section at pages 19-28 which describe the basic receiver equipment and concepts associated with the Fig. 1C combining, in "example #3" at pages 162-197 which disclose processing of monitoring information associated with the combining synch commands that cause the Fig. 1C to be displayed, "example #7" at pages 288-312, which discloses the selection of display of the "Wall Street Week" program itself, and "Controlling Computer Based Combined Media Operations" at pages 447-457, which discloses concepts associated with automatic acquisition of data (e.g., stock prices) necessary to produce the Fig. 1C combining and concepts associated with further overlays whose creation is based on the first combining synch command and that are displayed in the "Wall Street Week" program following the Fig. 1C combining. Claim 5 finds support in U.S. Patent 4,694,490, from which the instant application claims priority, in the passages cited below.

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
A method of delivering television programming	Page 20 lines 21-29.	In the example, the subscriber station of Fig. 1 is in New York City and is tuned to the conventional broadcast television transmission frequency of channel 13 at 8:30 PM on a Friday evening when the broadcast station of said frequency, WNET,

		commences transmitting a television program about stock market investing, "Wall Street Week." Said WNET station is an intermediate transmission station for said program which actually originates at a remote television studio in Owings Mills, Maryland.
to a subscriber	Page 26 lines 8-11.	TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.
in a communications network,	Page 20 line 31 to page 21 line 4.	From said program originating studio said program is transmitted by conventional television network feed transmission means, well known in the art, to a large number of geographically dispersed intermediate transmission stations that retransmit said program to millions of subscriber stations where subscribers view said program. Said network transmission means may include so-called landlines, microwave transmissions, a satellite transponder, or other means.
said network comprising a transmitter station	Page 20 lines 26-29.	Said WNET station is an intermediate transmission station for said program which actually originates at a remote television studio in Owings Mills, Maryland.
	Page 289 lines 12-15.	In example #7, the intermediate station that retransmits "Wall Street Week" program information to the subscriber station of Fig. 4 is a cable television system head end (such as the head end of Fig. 6).
and a receiver station,	Page 20 line 21.	...the subscriber station of Fig. 1....
said transmitter station being capable of communicating a processor control signal associated with said television programming,	Page 25 line 34 to page 26 line 8.	At this point, an instruction signal is generated at said program originating studio, embedded in the programming transmission, and transmitted. Said signal is identified by decoder, 203; transferred to microcomputer, 205; and executed by microcomputer, 205, at the system level as the statement, "GRAPHICS ON". Said signal instructs microcomputer, 205, at the PC-MicroKey 1300 to overlay the graphic information in its graphics card onto the received composite video information and transmit the combined information to TV

		monitor, 202M.
	Page 26 lines 20-28.	(Hereinafter, an instruction such as the above signal of "GRAPHICS ON" that causes subscriber station apparatus to execute a combining operation in synchronization is called a "combining synch command." Said initial signal word or words that preceded the above program instruction set provide another example of a combining synch command in that said word or words synchronized all subscriber station computers in commencing loading and running information for a particular combining.)
said receiver station comprising an input device for inputting subscriber information,	Page 26 line 2. Page 34 lines 17-20.	...decoder, 203.... SIGNAL DECODERS Signal decoder apparatus such as decoder, 203, in Fig. 1 and decoders, 30 and 40, in Fig. 2 are basic in the unified system of this invention.
	Page 156 lines 10-33.	THE PREFERRED CONFIGURATION OF CONTROLLER, 39, AND SPAM-CONTROLLER, 205C. Heretofore, this specification has treated the controller of decoder, 203, (which is controller, 39) and the SPAM input controller of microcomputer, 205, (which is SPAM-controller, 205C) as separate controllers. This treatment has served to show how SPAM messages are transferred from one controller to another, at any given subscriber station. But, in the preferred embodiment, the controller of the decoder that detects the SPAM signals of a combined medium transmission, at any given subscriber station, and the controller that executes the information of said signals at the microcomputer that combines the local and broadcast programming, at said station, are one and the same. More precisely, controller, 39, of decoder, 203, and SPAM-controller, 205C, are one and the same (and are called, hereinafter, "controller, 39"). Thus the preferred embodiment of controller, 39, is configured and preprogrammed not only to control the detecting, correcting, converting, and executing of controlled functions at decoder, 203, but also to input to and execute at microcomputer, 205, the

		information of any given detected SPAM message that is addressed to URS microcomputers, 205. Fig. 3A shows one such preferred controller, 39.
a processor for storing and processing subscriber data in response to said processor control signal,	Page 23 line 35 to page 24 line 27.	Subsequently, a second series of instructions is embedded and transmitted at said program originating studio. Said second series is detected and converted into usable digital signals by decoder, 203, and inputted to microcomputer, 205, in the same fashion as the first series. Microcomputer, 205, evaluates the initial signal word or words which instruct it to load at RAM (from the input buffer to which decoder, 203, inputs) and run the information of a particular set of instructions that follows said word or words just as the information of a file named FILE.EXE, recorded on the contained floppy disk, would be loaded at RAM (from the input buffer to which the disk drive of said disk inputs) and run were the command "FILE" entered from the console keyboard to the system level of the installed disk operating system. (Hereinafter, such a set of instructions that is loaded and run is called a "program instruction set.") In a fashion well known in the art, microcomputer, 205, loads the received binary information of said set at a designated place in RAM until, in a predetermined fashion, it detects the end of said set, and it executes said set as an assembled, machine language program in a fashion well known in the art. Under control of said program instruction set and accessing the subscriber's contained portfolio data file for information in a fashion well known in the art, microcomputer, 205, calculates the performance of the subscriber's stock portfolio and constructs a graphic image of that performance at the installed graphics card.
a communications device for transmitting information to a remote site,	Page 31 line 30 to page 32 line 20.	Buffer/comparator, 14, receives signal information that is meter information and/or monitor information from controller, 12, and from other inputs; organizes said received information into meter records and/or monitor records (called, in aggregate, hereinafter, "signal records") in a predetermined fashion or fashions; and

		transmits said signal records to a digital recorder, 16, and/or to one or more remote sites. With respect to particular simple or frequently repeated instances of signal information, buffer/comparator, 8, has capacity to determine, in a predetermined fashion or fashions, what received information should be recorded, how it should be recorded, and when it should be transmitted to recorder, 16, and/or to said remote sites and to initiate or modify signal records and to discard unnecessary information accordingly. To avoid overloading digital recorder, 16, with duplicate data, buffer/comparator, 14, has means for counting and/or discarding duplicate instances of particular signal information and for incorporating count information into signal records. Buffer/comparator, 14, receives time information from clock, 18, and has means for incorporating time information into signal records. Buffer/comparator, 14, also has means for transferring received information immediately to a remote site or sites via telephone connection, 22, and for communicating a requirement for such transfer to controller, 20, which causes such transfer.
and a television monitor for displaying a television program, said method comprising the steps of:	Page 22 lines 19-22.	Tuner, 215, receives this television transmission, converts the received television information into audio and composite video transmissions, and transmits the audio to monitor, 202M, and the video via divider, 4, to microcomputer, 205, and decoder, 203.
displaying said television program at said television monitor;	Page 25 lines 23-34.	While microcomputer, 205, performs these steps, TV monitor, 202M, displays the conventional television image and the sound of the transmitted "Wall Street Week" program. During this time the program may show the so-called "talking head" of the host as he describes the behavior of the stock market over the course of the week. Then the host says, "Now as we turn to the graphs, here is what the Dow Jones Industrials did in the week just past," and a studio generated graphic is transmitted. Fig. 1B shows the image of said graphic as it appears on the video screen of TV monitor, 202M. Then the host says, "And here is what your portfolio did."

inputting at said input device a subscriber reaction to said television program;	Page 25 line 34 to page 26 line 4.	At this point, an instruction signal is generated at said program originating studio, embedded in the programming transmission, and transmitted. Said signal is identified by decoder, 203; transferred to microcomputer, 205; and executed by microcomputer, 205, at the system level as the statement, "GRAPHICS ON".
	Page 189 lines 8-14;	...said match causes control processor, 39J, to cause matrix switch, 39I, to cease transferring information from EOFS valve, 39F, to control processor, 39J, and commence transferring information from control processor, 39J, to the PC-MicroKey System of microcomputer, 205; to transmit the instruction, "GRAPHICS ON", to said PC-MicroKey System;....
	with page 183 lines 4-20.	...and compares the information at said SPAM-exec memory with controlled-function-invoking information that is preprogrammed at the RAM and/or ROM associated with said processor, 39J. A match results with the aforementioned execute-conditional-overlay-at-205 information that is identical to the execute-conditional-overlay-at-205 information preprogrammed at SPAM-controller, 205C, of example #1. Said match causes control processor, 39J, to execute the aforementioned conditional-overlay-at-205 instructions. Said instructions cause SPAM-controller, 205C, to execute "GRAPHICS ON" at the PC-MicroKey System of microcomputer, 205, if the information of the program unit field in the meter-monitor information of said second message matches the information at said SPAM-first-precondition register memory and the information of the overlay number field in said meter-monitor information matches the information at said SPAM-second-precondition register memory.
	Page 450 lines 27-35.	(To accomplish all this has required only that the subscriber of microcomputer, 205, [and other subscribers at other stations] cause the installation and connection of the apparatus shown in the figures of this submission, especially Fig. 7 (and 7C); caused his microcomputer, 205, to be preprogrammed as described above; and preinformed

		microcomputer, 205, of his wish to view said "Wall Street Week" program by causing the aforementioned select-WSW information to be recorded at said microcomputer, 205.)
communicating from said receiver station a datum of one of	Page 271 line 33 to page 272 line 1. Page 180 lines 27-33.	In examples #3, #4, and #5, the transmission of SPAM signal information causes signal processor, 200, to transfer signal record information by telephone to remote station computers. The command execution segment of the 1st monitor information (#3) causes signal processor, 200, to assemble the this new monitor record in a particular format of a combined video/computer medium display and to include a particular record format field within said format identifying the format of said record.
(1) a customer order for said television programming;	Page 289 line 22 to page 290 line 3.	In example #7, the controller, 20, of the signal processor, 200, of Fig. 4 is preprogrammed at a particular time with particular information that indicates that the subscriber of said station wishes to view said "Wall Street Week" program when transmission of said program on cable cable 13 commences. (So preprogramming controller, 20, can occur in several fashions. For example, prior to a particular time, a subscriber may enter particular please-fully-enable-WSW-on-CC13-at-particular-8:30 information at local input, 225, and cause said information, in a predetermined fashion, to be inputted to controller, 20, by local input, 225. Alternately, microcomputer, 205, can be preprogrammed with particular specific-WSW information and, in a predetermined fashion that is described more fully below, caused to input said please-fully-enable-WSW-on-CC13-at-particular-8:30 information to said controller, 20.)
(2) an identification of said television programming, said television programming being associated with said television program;	Page 271 line 33 to page 272 line 1. Page 192 lines 33 to page 193 line 10.	*See above.* The particular overlay information of the command meter-monitor segment of the 2nd monitor information (#3) also provides new information. Controller, 20, uses said particular overlay information in several fashions. It records in a particular field of said new monitor record a count, starting with "1" for said first overlay, of the number of overlays processed in the course of said

		program unit. It increments by one a separate monitor record count of the aggregate number of overlays displayed at monitor, 202M, over a particular calendar month period. And it increments by one a separate monitor record count of the aggregate number of combinings processed by all receiver station apparatus over a particular time period.
	Page 189 lines 18-23.	At the subscriber station of Fig. 3 (and at URS microcomputers, 205, at other subscriber stations), said instruction, "GRAPHICS ON", causes said PC-MicroKey System to combine the programming of Fig. 1A and of Fig. 1B and transmit the combined programming to monitor, 202M, where Fig. 1C is displayed.
	Page 26 lines 2-11.	...transferred to microcomputer, 205; and executed by microcomputer, 205, at the system level as the statement, "GRAPHICS ON". Said signal instructs microcomputer, 205, at the PC-MicroKey 1300 to overlay the graphic information in its graphics card onto the received composite video information and transmit the combined information to TV monitor, 202M. TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.
(3) a viewership statistic; and	Page 271 line 33 t o page 272 line 1.	*See above.*
	Page 192 lines 9-25.	By comparing said information with date and time information from clock, 18, in a predetermined fashion, controller, 20, determines whether said "Wall Street Week" programming is being displayed at the time of its original transmission or whether it has been so- called "time shifted"; that is, recorded at one time an a receiver station video tape recorder and played back at a subsequent time. If controller, 20, determines that the time of clock, 18, is the time of original transmission (plus or minus particular error parameter information), controller, 20, deletes the information of the day of the particular transmission within a one hundred year period from said monitor record, modifies the record format field with information that distinguishes said new

		record as a record of a display of an original transmission, and enters all other recorded information of said new monitor record into the particular fields of said format.
	Page 181 lines 2-5,	...onboard controller, 14A, selects and records at particular signal record field locations at said record location the information that identifies the program unit of the particular "Wall Street Week" program,....
	with page 88 lines 17-22, and	In the third example, combined information is displayed at each subscriber station just as in the first example. In addition, monitor information is processed at selected stations for one or more so-called "ratings" agencies (such as the A. C. Nielsen Company) that collect statistics on viewership and programming usage.
	Page (ii) lines 18-23.	OPERATING S.P. SYSTEMS EXAMPLE #3
(4) a query for information related to a portfolio of subscriber data;	Page 449 lines 26-35.	Alternatively, microcomputer, 205, is caused in a predetermined fashion (for example, by a SPAM message a given transmission monitored by signal processor, 200, in any of the above described fashions) automatically to telephone a remote data service computer, by means of network, 262, in a fashion well known in the art, and to cause said remote computer to select and transmit the particular closing price datum or data of the stock or stocks of the portfolio of said microcomputer, 205, thereby causing said microcomputer, 205, to record said datum or data in a predetermined fashion.
receiving, at said receiver station, operating instructions associated with said television	Page 24 lines 2-4.	Said second series is detected and converted into usable digital signals by decoder, 203, and inputted to microcomputer, 205, in the same fashion as the first series.
programming in response to said inputted subscriber reaction;	Page 171 lines 4-7;	Automatically, microcomputer, 205, commences receiving the information of the program instruction set in said first message, beginning with the first signal word of said set, and loads said information at particular main RAM.
	with page 167 lines 3-7.	A match results with the aforementioned execute-at-205 information that is identical to the execute- at-205 information preprogrammed at SPAM-controller, 205C, of example #1. Said match causes control

		processor, 39J, to execute the aforementioned load-run-and-code instructions.
storing, at said receiver station, said operating instructions; and	Page 24 lines 14-21. Page 171 lines 4-7.	(Hereinafter, such a set of instructions that is loaded and run is called a "program instruction set.") In a fashion well known in the art, microcomputer, 205, loads the received binary information of said set at a designated place in RAM ... as an assembled, machine language program in a fashion well known in the art. Automatically, microcomputer, 205, commences receiving the information of the program instruction set in said first message, beginning with the first signal word of said set, and loads said information at particular main RAM.
controlling, in accordance with said operating instructions, said receiver station to receive and output one of said television programming	Page 25 lines 1-4. Page 26 lines 8-11. Page 177 line 25 to page 178 line 3.	...in a fashion well known in the art, the instructions cause microcomputer, 205, to enter digital bit information at the video RAM of the graphics card in a particular pattern that depicts the said percentage change as it would be graphed on a particular graph with a particular origin and set of scaled graph axes. Upon completion of these steps, the instructions cause microcomputer, 205, to commence waiting for a subsequent instruction from decoder, 203. If the information at video RAM at the end of these steps were to be transmitted alone to the video screen of a TV monitor, it would appear as a line of a designated color, such as red, on a background color that is transparent when overlaid on a separate video image. Black is such a background color, and Fig. 1A shows one such line. TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic. As described in "One Combined Medium" above, running the information of said program instruction set causes microcomputer, 205, (and URS microcomputers, 205, at other subscriber stations) to place appropriate Fig. 1A image information at particular video RAM. In addition, running said set also causes

		microcomputer, 205, after completing placing said image information at said RAM, to transfer particular number-of-overlay-completed information and instructions to control processor, 39J. Said information and instructions cause control processor, 39J, to place the number "00000001" at particular SPAM-second-precondition register memory at control processor, 39J, signifying that said image information represents the first overlay of its associated video program.
	Page 452 line 30 to page 453 line 1.	For example, receiving the second message of the "Wall Street Week" program causes the combining of Fig. 1A information and Fig. 1B information only at stations where information at the aforementioned SPAM-first-precondition and SPAM-second-precondition register memories matches selected information of the meter-monitor segment of said message.
and information that is associated with said television programming.	Page 451 lines 1-11.	Then the combined medium combining process described above in "One Combined Medium" and in examples #1, #2, #3, #4, etc. commences. And the Fig. 1C combining is displayed. But the combining of Fig. 1C is just part of a larger process. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, the program instruction set in the first message of the "Wall Street Week" example instructs microcomputer, 205, to generate not one but a plurality overlays. The combining of Fig. 1C is merely the first.
	Page 453 lines 31-32.	The next overlay of said program, which is the second overlay, is identified with information of "00000010".

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
A method of delivering television programming to	Column 19 line 60 to column 20 line 2.	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This

		signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.
a subscriber	Column 19 line 67.	The viewer then sees a microcomputer generated graphic....
in a communications network,	Column 16 lines 32-39.	For example, a person might instruct video cassette recorder, 135, automatically to record the NBC Network Nightly News as broadcast over station WNBC in New York City. Recorder, 135, might receive the programing over Manhattan Cable TV channel 4 and record the programing from 7:00 PM to 7:30 PM on the evening of July 15, 1985. Each discrete bit of this information could be conveyed to recorder, 135, in a signal unit or units in the programing so received and recorded.
said network comprising a transmitter station	Column 10 lines 24-28.	FIGS. 3A, 3B and 3C illustrates one instance of such use. Figure 3 illustrates the use of Signal Processing Apparatus and Methods at a cable television system "head end" transmission facility that cablecasts several channels of television programing.
and a receiver station,	Column 17 lines 47-53.	Figure 6 illustrates one possible configuration of equipment in a home or office or other television and/or radio receiving site. Consideration of Figure 6 is facilitated by consideration, first, of individual examples of the types of co-ordinated presentations that the signal apparatus and methods described here can permit.
said transmitter station being capable of communicating a processor control signal associated with said television programming,	Column 17 lines 34-46	Methods for Governing or Influencing the Operation of Equipment that is External to Conventional Television and Radio Sets by Passing Instruction and Information Signals that are Embedded in Television and Radio Programing Transmissions to Such External Equipment Signal processor apparatus have the ability to identify instruction and information signals in one or more inputted television and radio programing transmissions, identify and discriminate among one or more pieces of external equipment to which such signals are

		addressed, and transfer such signals to such equipment as directed. This permits many valuable techniques for facilitating the operation of such external equipment.
said receiver station comprising an input device for inputting subscriber information,	Column 17 line 60 to column 18 lines 4.	Such signals might include current outside temperature and barametric readings. They might include forecast data. Signal processor, 200, is always operating and monitors all incoming channels. It can convey such signals to microcomputer, 205, whenever it receives them. TV signal decoder, 203, can also identify such signals but only in the one TV channel transferred by box, 201, to TV set, 202, and then only when TV set, 202, is on and operating. Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
a processor for storing and processing subscriber data in response to said processor control signal,	Column 19 lines 35-49.	Each weekday, microcomputer, 205, receives, about 4:30 PM, by means of a digital information channel, all closing stock prices applicable that day. It may receive these directly or it may automatically query a data service for them in a predetermined fashion. It records those prices that relate to the stocks in its stored portfolio. Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205.
	Column 15 lines 52-65.	If a unit like the microcomputer can receive transmissions from more than one source or of more than one kind--television, radio, or other--it will have sufficient apparatus to monitor every channel and kind of transmission it can receive. The signals for which the decoders are monitoring are likely to be unique digital codes that may identify each programing or data unit received and the source of each. They may identify networks, broadcast stations, channels on cable systems, and possibly times of transmission. They may convey unique identifier codes for each program or commercial. In the case of data

		transmitted to the micro- computer, they may be unique codes that identify the source and suppliers of the data.
	Column 16 line 51 to column 17 line 9.	Signal processor, 130, would probably receive these signals from decoders, 131, 136, 138, 143, 145, 147, 149, and 150) at its buffer/comparator unit, 14 (referring to Fig. 1), in a predetermined fashion that would permit signal processor, 130, to identify which decoder the individual signals come from and, in a predetermined fashion, create a signal string by appending digital information to the received signal which information might identify the individual decoder, 131, 136, 138, 143, 145, 147, 149, or 150 and the time of receipt at signal processor, 130. To minimize the use of data recorder, 16, buffer/comparator, 14, may evaluate signals in a predetermined fashion and discard some signals rather than passing them to the recorder, 16. It may compare each signal from a given source such as decoder, 131, with other signals received earlier from the same source. It may only count incoming duplicate signals or it may append a time code to the end of the basic signal string formed around the first received signal and alter this time designation each time a new duplicate signal is identified so that the time code identifies the time of receipt of the last duplicate signal. Whatever method is used, the buffer/comparator, 14, may discard all duplicate signals received. At a time when buffer/comparator, 14, determines in a predetermined fashion that it will receive no further duplicate signals, it transfers the full signal string to recorder, 16.
a communications device for transmitting information to a remote site,	Column 8 lines 46-50.	The controller, 20, also inputs the digital recorder, 16, to direct it to output the information from the memory of the recorder, 16, to telephone connection, 22, and thence to the collection site at the remote geographical location.
and a television monitor for displaying a television program, said method comprising the steps of:	Column 19 lines 28-29.	...to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."
displaying said television program at said television	Column 19 lines 53-60.	Subsequently in the program, the host says, "Here is what the Dow Jones Industrials did is the past week," and a studio generated graphic

monitor;		is pictured. The host then says, "Here is what the broader NASDAQ index did in the week past," and a studio generated graphic overlay is displayed on top of the first graphic. Then the host says, "And here is what your portfolio did."
inputting at said input device a subscriber reaction to said television program;	Column 19 lines 60-64. Column 17 line 44.	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. ...identify and discriminate among one or more pieces of external equipment to which such signals are addressed, and transfer such signals to such equipment as directed.
communicating from said receiver station a datum of one of: (1) a customer order for said television programming;	Column 19 lines 46-48. Column 19 lines 42-48. Column 15 lines 63-65.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. In the case of data transmitted to the microcomputer, they may be unique codes that identify the source and suppliers of the data.
(2) an identification of said television programming, said television programming being associated with said television program;	Column 19 line 63-64. Column 15 lines 63-65. Column 19 line 67 to column 20 line 2.	This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. *See above.* *See above.*
(3) a viewership statistic; and	Column 19 lines 5-30.	In another example, microcomputer, 205 may be preinformed that a certain television program, hypothetically "Wall Street Week," should be televised on TV set, 202, when it is cablecast. Microcomputer, 205, is preinformed of the time of cablecasting. ... microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to

		channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week." Co-ordinating Multimedia Presentations in Time
	Column 19 lines 45-48;	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205.
	and lines 63-64.	This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205.
	Column 15 lines 60-63.	They may identify networks, broadcast stations, channels on cable systems, and possibly times of transmission. They may convey unique identifier codes for each program or commercial.
	Column 3 lines 49-67.	Another method has application at receiver sites such as private homes or public places like theaters, hotels, brokerage offices, etc., whether commercial establishments or not. This method provides techniques whereby, automatically, single channel, single medium presentations, be they television, radio, or other electronic transmissions, may be recorded, co-ordinated in time with other programing previously transmitted and recorded, or processed in other fashions. Multimedia presentations may be co-ordinated in time and/or in place as, for example, when real-time video programing is co-ordinated with presentations from a microcomputer working with data supplied earlier. This method provides techniques whereby the timing and fashion of the playing, processing, and co-ordination of a presentation or presentations may be determined at the time and place of transmission or of presentation, either in whole or in part, either locally or remotely, or a combination of these factors. The method provides monitoring techniques to develop data on patterns of viewership....
	Column 15 lines 26 to 32.	Methods for Monitoring Reception and Operation

		Figure 5 illustrates methods for monitoring reception and operation which methods can be used to gather statistics on programing usage and associated uses of other data transmissions and equipment. Such statistics are necessary, for example, in the development of television program ratings.
(4) a query for information related to a portfolio of subscriber data;	Column 19 lines 35-41.	Each weekday, microcomputer, 205, receives, about 4:30 PM, by means of a digital information channel, all closing stock prices applicable that day. It may receive these directly or it may automatically query a data service for them in a predetermined fashion. It records those prices that relate to the stocks in its stored portfolio.
receiving, at said receiver station, operating instructions associated with said television programming in response to said inputted subscriber reaction;	Column 19 lines 45-48. Column 18 lines 1-4.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
storing, at said receiver station, said operating instructions; and	Column 19 lines 48-53.	These signals instruct microcomputer, 205, ... upon command. Subsequently in the program, the host says, "Here is what the Dow Jones Industrials did is the past week,"....
controlling, in accordance with said operating instructions, said receiver station to receive and output one of said television programming	Column 19 lines 48-53. Column 19 line 64 to column 20 line 2.	These signals instruct microcomputer, 205, ... upon command. Subsequently in the program, the host says, "Here is what the Dow Jones Industrials did is the past week,".... This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.
and information that is associated with said television programming.	Column 20 lines 2-6.	When the two studio generated graphics are no longer displayed, the studio stops sending the instruction signal, and the microcomputer, 205, ceases transmitting its own graphic to TV set, 202, and prepares to send the next locally generated graphic overlay upon instruction from the originating studio.

5. Claim 6

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-to-tune signal that causes a receiver to receive a selected transmission.	Page 291 lines 9-20.	In the interval between said commence-enabling time and said 8:30 PM time, said head end is caused, in a predetermined fashion, to transmit a particular enabling SPAM message that consists of a "01" header, execution segment information that matches said enable-next-program-on-CC13 information, particular meter-monitor information, information segment information of particular enable-CC13 instructions and particular enable-WSW instructions that include particular enable-WSW-programming information, and an end of file signal on the frequency of said master control channel. (Hereinafter said message is called the "local- cable-enabling-message (#7).")
	Page 292 lines 7-11.	Receiving said message causes controller, 20, to load the enable-CC13 instructions and the enable-WSW instructions of the information segment of said message at particular RAM of controller, 20, and execute said instructions as the machine language instructions of one job.
	Page 294 lines 28-33.	Resulting in a match causes controller, 20, to execute a particular portion of said enable-CC13 instructions. Executing the instructions of said portion causes controller, 20, in the predetermined fashion of the said portion, to cause selected apparatus of the station of Fig. 4 to receive the cable channel 13 transmission,....
	Page 295 lines 6-7.	Then, automatically, controller, 20, causes a selected tuner, 214, to tune to the frequency of cable channel 13,....

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5,	Column 19 lines 14-15,	Microcomputer, 205, instructs signal

wherein said processor control signal is an instruct-to-tune signal that causes a receiver to receive a selected transmission.	and lines 24-25.	processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201,...

6. Claim 7

A remote data source (e.g., a data service) stores data (e.g., transfer enabling data) to be processed to complete or supplement television programming. The data source receives a query for one of (i) a function associated with television programming (e.g., to enable transfer of television programming content) and (ii) the data. The data source transmits a signal which instructs the receiver station to store operating instructions and a signal that controls the receiver station to process the operating instructions.

Claim 7 finds support at pages 278-312 (especially 288-312) of the specification and in the passages cited below in U.S. Patent 4,694,490, from which the instant application claims priority.

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
A method of providing a function to a receiver station	Page 311 line 33 to page 312 line 8.	And for example, determining that a local station is not preprogrammed properly and/or that decryption, stripping, and/or signal generating apparatus are not functioning correctly may cause apparatus of said station to perform other steps of disabling and/or communicating—eg., the local apparatus may disable local apparatus selectively and only partially by, for example, preventing a decoder, 203, from processing embedded SPAM combining synch commands and may interrogate remote station apparatus, by telephone, for

		cipher key and/or cipher algorithm instructions and information.
	Page 311 lines 13-16.	...thereby causing the apparatus of the station of Fig. 4 (and of other correctly regulated and connected stations) to commence functioning in the fashions described above in "One Combined Medium" and in examples #1, #2, #3, and #4.
from at least one remote data source,	Page 288 lines 30-33.	In example #7, the program originating studio that originates the "Wall Street Week" transmission transmits a television signal ....
	Page 289 lines 12-15.	In example #7, the intermediate station that retransmits "Wall Street Week" program information to the subscriber station of Fig. 4 is a cable television system head end (such as the head end of Fig. 6).
said function for use at the receiver station in at least one of receiving and presenting at least one of (i) television programming	Page 291 lines 9-20.	In the interval between said commence-enabling time and said 8:30 PM time, said head end is caused, in a predetermined fashion, to transmit a particular enabling SPAM message that consists of a "01" header, execution segment information that matches said enable-next-program-on-CC13 information, particular meter-monitor information, information segment information of particular enable-CC13 instructions and particular enable-WSW instructions that include particular enable-WSW-programming information, and an end of file signal on the frequency of said master control channel. (Hereinafter said message is called the "local-cable-enabling-message (#7).")
	Page 294 lines 30-33.	Executing the instructions of said portion causes controller, 20, in the predetermined fashion of the said portion, to cause selected apparatus of the station of Fig. 4 to receive the cable channel 13 transmission,....
	Page 289 lines 19-21.	...then transmits the information of said program on cable channel 13, commencing at a particular 8:30 PM time on a particular Friday night.
	Page 309 line 27 to page 310 line 8.	Determining that signal stripper, 229, and that signal generator, 230, are stripping and inserting correctly (after having determined

		that that decryptors, 224 and 231, are decrypting correctly) causes the controller, 20, of the station of Fig. 4 (and causes controllers, 20, at other stations where so determining occurs) to execute particular additional 2nd-stage-enable-WSW-program instructions, and executing said instructions causes controller, 20, to cause the apparatus of the station of Fig. 4 to commence transferring the decrypted television information of the "Wall Street Week" program to microcomputer, 205, and monitor, 202M. Automatically, controller, 20, causes matrix switch, 258, to transfer the decrypted audio information inputted from decryptor, 107, to monitor, 202M, thereby causing monitor, 202M, to commence receiving said audio information and emitting sound in accordance with said audio information.
and (ii) information that does one of	Page 25 lines 9-14.	If the information at video RAM at the end of these steps were to be transmitted alone to the video screen of a TV monitor, it would appear as a line of a designated color, such as red, on a background color that is transparent when overlaid on a separate video image. Black is such a background color, and Fig. 1A shows one such line.
completes	Page 26 lines 8-11.	TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.
and supplements said television programming, said method comprising the steps of:	Page 25 lines 33-34; with column 26 lines 8-10.	Then the host says, "And here is what your portfolio did." TV monitor, 202M, then displays ... the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.
storing, at said at least one remote data source,	Page 288 line 21 to page 289 line 4.	OPERATING S. P. REGULATING SYSTEMS ... EXAMPLE #7 Example #7 illustrates the operation of the the signal processing regulating system of Fig. 4 and demonstrates the interaction of the aforementioned first and third features of the present invention--the capacity to compute station specific information at each subscriber station and the system of

		regulating (and metering) means and methods that is illustrated in Fig. 4. In example #7, the program originating studio that originates the "Wall Street Week" transmission transmits a television signal that consists of so-called "digital video" and "digital audio," well known in the art. Prior to being transmitted, the digital video information is doubly encrypted, by means of particular cipher algorithms A and B and cipher keys Aa and Ba, in such a way that said information requires decryption at subscriber stations in the fashion described below. The digital audio is transmitted in the clear.
data	Page 288 line 35 to page 289 line 1; and lines 18-19.	...by means of particular cipher algorithms A and B and cipher keys Aa and Ba,.... ...using particular cipher algorithm C and cipher key Ca, then transmits the information of said program on cable channel 13,....
that is to be used as a basis for said information that does said one of completes and supplements said television programming;	Page 23 line 35 to page 24 line 27.	Subsequently, a second series of instructions is embedded and transmitted at said program originating studio. Said second series is detected and converted into usable digital signals by decoder, 203, and inputted to microcomputer, 205, in the same fashion as the first series. Microcomputer, 205, evaluates the initial signal word or words which instruct it to load at RAM (from the input buffer to which decoder, 203, inputs) and run the information of a particular set of instructions that follows said word or words just as the information of a file named FILE.EXE, recorded on the contained floppy disk, would be loaded at RAM (from the input buffer to which the disk drive of said disk inputs) and run were the command "FILE" entered from the console keyboard to the system level of the installed disk operating system. (Hereinafter, such a set of instructions that is loaded and run is called a "program instruction set.") In a fashion well known in the art, microcomputer, 205, loads the received binary information of said set at a designated place in RAM until, in a predetermined fashion, it detects the end of said set, and it executes said set as an assembled, machine language program in a fashion well known in the art.

		Under control of said program instruction set and accessing the subscriber's contained portfolio data file for information in a fashion well known in the art, microcomputer, 205, calculates the performance of the subscriber's stock portfolio and constructs a graphic image of that performance at the installed graphics card.
	Page 22 lines 1-5.	a first series of control instructions is generated, embedded sequentially on said line or lines of the vertical interval, and transmitted on the first and each successive frame of said television program transmission,
receiving, from said receiver station, at said at least one remote data source,	Page 311 line 33 to page 312 line 8.	And for example, determining that a local station is not preprogrammed properly and/or that decryption, stripping, and/or signal generating apparatus are not functioning correctly may cause apparatus of said station to perform other steps of disabling and/or communicating—eg., the local apparatus may disable local apparatus selectively and only partially by, for example, preventing a decoder, 203, from processing embedded SPAM combining synch commands and may interrogate remote station apparatus, by telephone, for cipher key and/or cipher algorithm instructions and information.
a query for one of (i) a function associated with said television programming	Page 312 lines 6-8.	...may interrogate remote station apparatus, by telephone, for cipher key and/or cipher algorithm instructions and information.
	Page 289 lines 18-19.	...using particular cipher algorithm C and cipher key Ca, then transmits the information of said program on cable channel 13, commencing at a particular 8:30 PM time on a particular Friday night.
and (ii) said data;	Page 288 line 35 to page 289 line 1; and lines 18-19.	*See above.*
transmitting, from said at least one remote data source to said receiver station, in response to said step of receiving,	Page 297 lines 20-29.	Subsequently, but still in the interval between said commence-enabling time and said 8:30 PM time, said program originating studio embeds in the audio portion and transmits a particular SPAM message that consists of a "01" header, execution segment information that matches said enable-WSW-programming information, particular

		meter-monitor information, particular 1st-stage-enable-WSW-program instructions as the information segment information, and an end of file signal. (Hereinafter said message is called the "1st-WSW-program-enabling-message (#7).")
	Page 312 lines 6-8.	...may interrogate remote station apparatus, by telephone, for cipher key and/or cipher algorithm instructions and information.
an instruct signal	Page 59 lines 29-31.	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations.
which is effective at said receiver station to cause said receiver station to store	Page 298 lines 10-16.	Receiving the "1st-WSW-program-enabling-message (#7) causes controller, 20, to execute the aforementioned load- and-run-@20 instructions, to load the 1st-stage-enable-WSW- program instructions of the information segment at particular RAM of controller, 20, then to execute the information so loaded as the so-called machine language instructions of one so-called job.
operating instructions	Page 298 lines 12-13; and page 312 line 7.	*See above.* *See above.*
at a storage device	Page 298 line 14.	*See above.*
that is associated with a processor;	Page 33 lines 7-8.	Signal processor, 26, has a controller device which includes programmable RAM controller, 20;....
transmitting, from said at least one remote data source to said receiver station,	Page 303 line 29 to page 304 line 11.	Each of said messages consists of a "01" header, execution segment information that matches said enable-WSW-programming information, particular meter-monitor information, particular 2nd-stage-enable-WSW- program instructions as the information segment information, and an end of file signal. Each of said messages is identical except as as regards certain differences in said 2nd-stage-enable-WSW-program instructions that are described below. Prior to being embedded and transmitted the information of each of said messages is encrypted, in the same fashion as the first message of example #4 (except that key J is used), and the encrypted information of the

		execution segment is identical to particular controlled- function-invoking information that instructs use decryption key J to decrypt the information of said message in the fashion of the decrypting of said second message. (Hereinafter, each of said SPAM messages is called a "2nd-WSW-program-enabling-message (#7).")
a signal which controls said receiver station to process said operating instructions.	Page 59 lines 29-31. Page 304 line 14 to page 305 line 2.	*See above.* Transmitting said message causes the line receiver, 33, of decoder, 30, to receive the embedded SPAM information of that particular 2nd-WSW-program-enabling-message (#7) that is embedded on said line Q; the detector, 34, to detect the digital information of said message; and the controller, 39, to process said information. Automatically, control processor, 39J, causes controller, 20, to cause the decryptor, 39K, of decoder, 30, to commence decrypting using decryption key J and causes decryptor, 39K, to receive the information of said message. Automatically, decryptor, 39K, decrypts the encrypted information of said message and transfers said message to EOFS valve, 39H. Automatically, EOFS valve, 39H, inputs the information of said message, unencrypted, to control processor, 39J, until the end of file signal of said message is detected. Automatically, control processor, 39J, determines that the unencrypted information of the execution segment of said message matches the aforementioned instance of enable-WSW-programming information at said particular controlled-function-invoking information location and executes the aforementioned transfer-this-message-to-controller-20 instructions. Executing said instructions causes the transfer of the information of said message to controller, 20, in the fashion of the local-cable-enabling-message (#7).

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
A method of	Column 15 lines 1-7;	If signal processor, 112, can identify, processes,

providing a function to a receiver station		and transfer the needed signal or signals, decryptor/interruptor, 115, can decrypt and/or transfer the incoming transmission from box, 114, satisfactorily. If signal processor, 112, cannot transfer the needed signal or signals, decryptor/interruptor, 115, cannot decrypt and/or transfer the programing transmission satisfactorily.
	lines 20-25.	In any of the cases illustrated in Figures 4A through 4E, signal processors, 100, 103, 106, 109, and 112, could also operate in a predetermined fashion and telephone a remote site to get an additional signal or signals necessary for the proper decryption and/or transfer of incoming programing transmissions.
from at least one remote data source,	Column 9 lines 21-23.	It is interactive with external sources via telephone connection, 22, and can be reprogramed from such remote sources.
	Column 19 lines 60-63.	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission.
	Column 11 lines 50-57.	For example, if controller/computer, 73, determines that programing incoming via receiver, 53, should be transmitted immediately to the field distribution system, 93, via cable channel modulator, 87, controller/computer, 73, instructs matrix switch, 75, to configure its switches so as to transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87.
said function for use at the receiver station in at least one of receiving and presenting at least one of (i) television programming	Column 19 lines 20-29.	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."
and (ii) information that does one of	Column 19 line 67 to column 20 line 1.	The viewer then sees a microcomputer generated graphic of his own stocks'

		performance overlay the studio generated graphic.
completes and	Column 19 line 67 to column 20 line 2.	*See above.*
supplements said television programming, said method comprising the steps of:	Column 19 lines 59-60;	Then the host says, "And here is what your portfolio did."
	Column 19 lines 67 to column 20 line 1.	*See above.*
	with column 18 lines 67-68.	...may record the information in memory or transfer it to printer, 221, for printing.
storing, at said at least one remote data source,	Column 11 lines 3-7.	Signal processor, 71, has means, described above, to identify and separate the instruction and information signals from their associated programing and pass them, along with information identifying the channel source of each signal, externally to code reader, 72.
data that is to be used as a basis for said information that does said one of completes and supplements said television programming;	Column 11 lines 4-5.	...to identify and separate the instruction and information signals....
	column 19 lines 42-44.	Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission.
receiving, from said receiver station, at said at least one remote data source,	Column 15 lines 20-25.	In any of the cases illustrated in Figures 4A through 4E, signal processors, 100, 103, 106, 109, and 112, could also operate in a predetermined fashion and telephone a remote site to get an additional signal or signals necessary for the proper decryption and/or transfer of incoming programing transmissions.
a query	Column 9 lines 21-23.	It is interactive with external sources via telephone connection, 22, and can be reprogramed from such remote sources.
for one of (i) a function associated with said television programming	Column 15 lines 22-23;	...could also operate in a predetermined fashion and telephone a remote site to get an additional signal....
	with column 19 lines 12-14;	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 37-53.	It may receive these directly or it may automatically query a data service for them in a predetermined fashion. It records those

		prices that relate to the stocks in its stored portfolio. Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
and (ii) said data;	Column 15 lines 1-4.	If signal processor, 112, can identify, processes, and transfer the needed signal or signals, decryptor/interruptor, 115, can decrypt and/or transfer the incoming transmission from box, 114, satisfactorily.
	Column 19 lines 12-23.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system. Signal processor, 200, receives this instruction from microcomputer, 205, at its processor or monitor, 12, which reacts, in a predetermined fashion by passing also externally to microcomputer, 205, all signals that it passes to buffer/ comparator, 14. Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.
	Column 19 line 59 to column 20 line 2.	Then the host says, "And here is what your portfolio did." At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.
	Column 19 lines 35-53.	Each weekday, microcomputer, 205, receives,

		about 4:30 PM, by means of a digital information channel, all closing stock prices applicable that day. It may receive these directly or it may automatically query a data service for them in a predetermined fashion. It records those prices that relate to the stocks in its stored portfolio. Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
transmitting, from said at least one remote data source to said receiver station, in response to said step of receiving,	Column 15 lines 20-25.	In any of the cases illustrated in Figures 4A through 4E, signal processors, 100, 103, 106, 109, and 112, could also operate in a predetermined fashion and telephone a remote site to get an additional signal or signals necessary for the proper decryption and/or transfer of incoming programing transmissions.
	Column 9 lines 21-23.	It is interactive with external sources via telephone connection, 22, and can be reprogramed from such remote sources.
an instruct signal	Column 8 lines 35-39.	[Controller, 20] can instruct buffer/comparator, 8, how to assemble signal words into signal units and join units together for further transfer and how to determine which signals to pass to decrypter, 10.
which is effective at said receiver station to cause said receiver station to	Column 17 lines 39-44.	Signal processor apparatus have the ability to identify instruction and information signals in one or more inputted television and radio programing transmissions, identify and discriminate among one or more pieces of external equipment to which such signals are addressed, and transfer such signals to such equipment as directed.
store operating instructions at	Column 19 lines 45-53.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205.

a storage device that is associated with a processor;	Column 18 lines 65-67. column 17 line 62 to column 18 line 4.	These signals instruct microcomputer, 205, ... upon command. Subsequently,.... ...microcomputer, 200, may record the information in memory or transfer it.... [Signal processor, 200] can convey such signals to microcomputer, 205, whenever it receives them. TV signal decoder, 203, can also identify such signals but only in the one TV channel transferred by box, 201, to TV set, 202, and then only when TV set, 202, is on and operating. Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
transmitting, from said at least one remote data source to said receiver station, a signal which controls said receiver station to process said operating instructions.	Column 19 lines 20-23. Column 19 lines 43-44. Column 19 line 63 to column 20 line 2.	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. ...signals embedded in the "Wall Street Week" programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

7. Claim 8

An origination transmitter station controls a remote intermediate transmitter station (e.g., a cable head end which receives and retransmits signals) to transmit an instruct signal to a receiver station (e.g., a television viewer station). The remote intermediate transmitter station includes (i) a transmitter, (ii) a plurality of selective transfer devices (e.g., switches and/or storage devices) connected to the transmitter, (iii) a receiver for receiving the instruct signal from the origination

transmitter station, (iv) and control signal detector, and (v) a controller capable of controlling at least one of the selective transfer devices to transmit the instruct signal in response to a control signal. The origination transmitter station receives and delivers to an origination transmitter (i.e., transmits to the intermediate station) an instruct signal which is effective to cause a computer at the receiver station to store operating instructions (e.g., the instruct signal passes to the computer instructions which program the computer to perform a series of functions "upon command" and the instructions are executed by the computer in response to one or more commands subsequently received by the computer). The origination transmitter receives a control signal (e.g., an identifier to be transmitted with the instruct signal and compared to a transmission schedule by the intermediate station) which controls the intermediate transmitter station to deliver the instruct signal to its transmitter. The origination transmitter delivers the control signal to the origination transmitter before a specific time (e.g., a scheduled time of transmitting an information transmission containing the instruct signal from the intermediate transmitter station).

With regard to the functioning of the transmitter station, support for claim 8 is found at pages 374-390 of the specification. With regard to the corresponding functionality of the receiver station, support is found at pages 468-516. (As explained above in section **Error! Reference source not found.**, the correspondence between these two passages is clear through the use of a narrative sequence in each passage which uses carefully defined message names and processing functions associated with more than thirteen messages.) Claim 8 is also supported independently at pages 354-374, although not shown in the table below. Claim 8 finds support in Patent No. 4,694,490, from which priority is claimed, in the passages cited below.

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
A method of controlling a remote intermediate data transmitter station	Page 374 line 32 to page 375 line 10.	In example #10, a particular program originating studio transmits the commercial of program unit Q in a network transmission and controls a plurality of intermediate transmission stations each of which controls, in turn, a plurality of subscriber stations that are ultimate receiver stations. The station of Fig. 6 is one intermediate transmission station controlled by said studio. The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83. The program unit Q of example #10 is identical to the program unit Q of example #9, and each intermediate transmission station must generate transmit its own, station specific program instruction set and data module set information that contains its own, station specific formula- and-item-of-this-transmission information.
to communicate data	Page Page 375 lines 8-12.	The program unit Q of example #10 is identical to the program unit Q of example #9, and each intermediate transmission station must generate transmit its own, station specific program instruction set and data module set information that contains its own, station specific formula-and-item-of-this-transmission information.
to at least one receiver station,	Page 374 line 34 to page 375 line 2.	...a plurality of intermediate transmission stations each of which controls, in turn, a plurality of subscriber stations that are ultimate receiver stations.
	Page 390 lines 30-31.	Fig. 7 exemplifies one embodiment of an ultimate receiver station;...
with said remote intermediate data transmitter station including (i) one of a broadcast transmitter and a cablecast transmitter	Page 375 lines 3-6.	The station of Fig. 6 is one intermediate transmission station controlled by said studio. The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
	Page 324 lines 7-21.	AUTOMATING INTERMEDIATE TRANSMISSION STATIONS The signal

		processing apparatus outlined in Figs. 2, 2A, 2B, 2C, and 2D, and their variants as appropriate, can be used to automate the operations of intermediate transmission stations that receive and retransmit programming. The stations so automated may transmit any form of electronically transmitted programming, including television, radio, print, data, and combined medium programming and may range in scale of operation from wireless broadcast stations that transmit a single programming transmission to cable systems that cablecast many channels simultaneously. Fig. 6 illustrates Signal Processing Apparatus and Methods at an intermediate transmission station that is a cable television system "head end" and that cablecasts several channels of television programming.
	Page 59 lines 29-33.	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
for transmitting at least one instruct signal which is effective at said at least one receiver station to instruct	Page 382 lines 17-24.	Immediately after commencing to transmit said programming of Q, said studio embeds in the normal transmission location of the transmission of said programming and transmits a particular SPAM message is addressed to URS signal processors, 200, and that causes ultimate receiver stations to combine their microcomputers, 205, to the computer system of the transmission of said program originating studio.
	Page 40 lines 16-23.	INTRODUCTION TO THE SIGNALS OF THE INTEGRATED SYSTEM The signals of the present invention are the modalities whereby stations that originate programming transmissions control the handling, generating, and displaying of programming at subscriber stations. (The term, "SPAM," is used, hereinafter, to refer to signal processing apparatus and methods of the present invention.)
one of a first computer and a processor	Page 45 line 21 to page 46 line 2.	Execution segment information includes the subscriber station apparatus that the command of said segment addresses and the

		controlled functions said apparatus is to perform. ("ITS" refers, hereinafter, to intermediate transmission station apparatus, and "URS" refers to ultimate receiver station apparatus.) Examples of addressed apparatus include: ITS signal processors (in 71 in Fig. 6), ITS controller/computers (73 in Fig. 6), URS signal processors (200 in Fig. 7), URS microcomputers (205 in Fig. 7),...
to store operating instructions	Page 46 lines 8-11.	Examples of controlled functions include: Load and run the contents of the information segment.
	Page 54 lines 2-6.	An information segment can transmit any information that a processor can process. It can transmit compiled machine language code or assembly language code or higher level language programs, all of which are well known in the art.
	Page 386 lines 12-14.	...thereby transmitting the particular program-instruction-set message (#10) of said station to said system, 93.
	and page 484 lines 7-18.	Receiving the specific program-instruction-set message (#10) of its intermediate transmission station causes each ultimate receiver station to record one instance of the PROGRAM.EXE information in said message at particular RAM and execute the information so loaded as a machine language job. At the station of Figs. 7 and 7F, receiving the program-instruction-set message (#10) transmitted by the intermediate transmission station of Fig. 6 causes said message to be detected at decoder, 203, and causes decoder, 203, to load and execute at microcomputer, 205, the information segment of said message (which is the program instruction set of Q.1 and is the output file, PROGRAM.EXE, of said station).
associated with at least one of a television program and a television commercial;	Page 470 lines 2-3,	...television program on cooking techniques that is called "Exotic Meals of India."
	and page 478 lines 23-26.	Then said studio ceases transmitting "Exotic Meals of India" programming for a so-called "commercial break" and commences transmitting the conventional television video and audio information of program unit

		Q.
(ii) a plurality of selective transfer devices, each operatively connected to said one of a broadcast transmitter and a cablecast transmitter for communicating said data;	Page 385 lines 24-31.	Then, automatically, each of said computers, 73, selects and transmits to the generator, 82, of its station, information of a "01" header; information of a particular SPAM execution segment that is addressed to URS microcomputers, 205; its retained meter-monitor information; any required padding bits; complete information of the program instruction set that is at its program-set-to transmit RAM memory; and information of a SPAM end of file signal.
(iii) a data receiver for receiving information from at least one origination transmitter station;	Page 375 lines 3-6	The station of Fig. 6 is one intermediate transmission station controlled by said studio. The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
(iv) a control signal detector; and	Page 377 lines 20-25..	Causing said station apparatus to tune to said transmission causes those particular dedicated decoders of the signal processor systems, 71, of said stations that process continuously the inputted transmission of the distribution amplifiers, 63, to detect SPAM information embedded in the normal transmission location of said transmission and input said SPAM information to the computers, 73, of said stations.
(v) one of a controller and a second computer capable of controlling at least one of said plurality of selective transfer devices,	Page 326 lines 19-20.	Cable program controller and computer, 73, is the central automatic control unit for the transmission station.
	Page 385 lines 24-31.	Then, automatically, each of said computers, 73, selects and transmits to the generator, 82, of its station, information of a "01" header; information of a particular SPAM execution segment that is addressed to URS microcomputers, 205; its retained meter-monitor information; any required padding bits; complete information of the program instruction set that is at its program-set-to transmit RAM memory; and information of a SPAM end of file signal.
said remote intermediate data transmitter station adapted to (i) detect the presence of at least	Page 377 line 26 to page 378 line 6.	Then the program originating studio at said network originating and control station, embeds in said normal transmission location and transmits a SPAM message that is addressed to ITS computers, 73, and

one control signal,		consists of a "01" header, a particular execution segment, appropriate meter-monitor information, padding bits as required, information segment information of the aforementioned intermediate generation set of Q, and an end of file signal. (Hereinafter, said message is called the "generate-set- information message (#10)".) Except for its meter-monitor information, said generate-set-information message (#10) is identical to the aforementioned generate-set-information message (#9). Transmitting said generate-set-information message (#10) causes said dedicated decoders to detect and input said message to the computers, 73, of said stations.
	Page 45 lines 25-33.	("ITS" refers, hereinafter, to intermediate transmission station apparatus, and "URS" refers to ultimate receiver station apparatus.) Examples of addressed apparatus include: ITS signal processors (in 71 in Fig. 6), ITS controller/computers (73 in Fig. 6),....
said at least one control signal operating at said remote intermediate data transmitter station to control communication of	Page 385 lines 7-16.	(Said message is called, hereinafter, the "transmit-and- execute-program-instruction-set message (#10)".) Receiving said message causes each of said computers, 73, to generate a second outbound SPAM message that includes information of the program instruction set at its program-set-to-transmit RAM memory and to cause said message to be transmitted to its field distribution system, 93. (Hereinafter, the second outbound SPAM message of any given one of said SPAM computers, 73, is called a "program- instruction-set message (#10)",...
said at least one instruct signal,	Page 386 lines 7-14.	Receiving the information of the particular program- instruction-set message (#10) of the computer, 73, of its station causes a generator, 82, to embed said information in the normal transmission location of the programming of Q transmission being transmitted via said generator, 82, to the field distribution system, 93, of said station, thereby transmitting the particular program-instruction-set message (#10) of said station to said system, 93.
(ii) to control the communication of said	and page 385 lines 24-34.	Then, automatically, each of said computers, 73, selects and transmits to the generator, 82,

at least one instruct signal in response to said detected at least one control signal, and		of its station, information of a "01" header; information of a particular SPAM execution segment that is addressed to URS microcomputers, 205; its retained meter-monitor information; any required padding bits; complete information of the program instruction set that is at its program-set-to transmit RAM memory; and information of a SPAM end of file signal. Said selected and transmitted information that each of said computers, 73, transmits is complete information of the particular program- instruction-set message (#10) of said computer, 73.
	Page 381 line 16 to page 382 line 5.	...said program originating studio embeds in the normal transmission location of said transmission and transmits a second SPAM message. Said second message is addressed to ITS computers, 73, and consists of a "01" header, a particular execution segment, appropriate meter-monitor information, padding bits as required, particular information segment instruction information, and an end of file signal. (Hereinafter, said message is called the "load-set-information message (#10)".) ... Receiving said message causes each of said computers, 73, to load said information segment instruction information at particular RAM. Then receiving said end of file signal causes each of said computers, 73, to execute the instruction information of so loaded as an compiled, machine language job. Executing said instruction information causes said computers, 73, each to load the information of said files, PROGRAM.EXE and DATA_OF.ITS, at particular program-set-to- transmit and data-set-to-transmit RAM memories of computer, 73,....
(iii) to deliver at said one of said broadcast transmitter and said cablecast transmitter said at least one instruct signal, said method comprising the steps of:	Fig. 6B with page 386 lines 7-14,	Receiving the information of the particular program- instruction-set message (#10) of the computer, 73, of its station causes a generator, 82, to embed said information in the normal transmission location of the programming of Q transmission being transmitted via said generator, 82, to the field distribution system, 93, of said station, thereby transmitting the particular program-instruction-set message (#10) of

		said station to said system, 93.
	and page 375 lines 3-6.	The station of Fig. 6 is one intermediate transmission station controlled by said studio. The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
(1) receiving said at least one instruct signal at said at least one origination transmitter station;	Page 375 lines 4-6.	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
	Page 59 lines 29-33.	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
	Page 382 lines 15-27.	Then said program originating studio starts to transmit the conventional television programming of unit Q. Immediately after commencing to transmit said programming of Q, said studio embeds in the normal transmission location of the transmission of said programming and transmits a particular SPAM message is addressed to URS signal processors, 200, and that causes ultimate receiver stations to combine their microcomputers, 205, to the computer system of the transmission of said program originating studio. (Said message and the functioning that said message causes are described more fully below, and hereinafter, said message is called the "align-URS- microcomputers-205 message (#10)".)
	Page 383 lines 17-21,	In so doing, transmitting said control-invoking message (#10) causes said microcomputers, 205, to come under control of the computer system of the transmission of said studio.
	and page 382 line 30 to 383 line 8.	After an interval that is sufficient to allow apparatus at each ultimate receiver station so to combine, said studio embeds in said transmission and transmits a particular SPAM message whose execution segment is of the aforementioned pseudo command. Transmitting said message causes particular

		decoder apparatus at said ultimate receiver stations to detect an end of file signal and to commence identifying and processing the individual SPAM messages of the SPAM information subsequently embedded in the transmission of the programming of Q. (Said message and the functioning that said message causes are described more fully below, and hereinafter, said message is called the "synch-SPAM-reception message (#10)".) Thereafter, embedding and transmitting any given SPAM message in said transmission invokes a controlled function or functions at particular ones of said decoder apparatus.
(2) delivering said at least one instruct signal to at least one origination transmitter;	Page 383 lines 17-21, and page 382 line 30 to 383 line 8.	*See above.*
(3) receiving said at least one control signal at said at least one origination transmitter station; and	Page 385 lines 3-8.	Then said program originating studio embeds in the normal transmission location of said transmission and transmits a SPAM message that is addressed to ITS computers, 73, and that contains execution and meter-monitor segments. (Said message is called, hereinafter, the "transmit-and-execute-program-instruction-set message (#10)".)
(4) delivering said at least one control signal to said at least one origination transmitter before a specific time.	Page 385 lines 3-8. Page 386 lines 13-14.	*See above.* ...thereby transmitting the particular program-instruction-set message (#10) of said station to said system, 93.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
A method of controlling a remote intermediate data transmitter station	Column 10 lines 14-28 with respect to column 19 lines 60-63.	The signal processing apparatus outlined in Figures 1, A, 2B, and 2C, and their variants as appropriate, can be used to automate the operations of an intermediate transmission point whether it be a broadcast station transmitting only a single channel of programing or a cable system cablecasting many channels. They can be used in a facility

		transmitting television programing, radio programing, and making other electronic transmissions. FIGS. 3A, 3B and 3C illustrates one instance of such use. Figure 3 illustrates the use of Signal Processing Apparatus and Methods at a cable television system "head end" transmission facility that cablecasts several channels of television programing.
to communicate data	Column 11 lines 54-57.	controller/computer, 73, instructs matrix switch, 75, to configure its switches so as to transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87.
	Column 4 lines 5-13.	These techniques employ signals embedded in programs. The advantage of such embedded signals, as compared to header and trailer signals, is that they cannot become separated inadvertantly from the programing and, thereby, inhibit automatic processing, that they can convey signals to equipment that must switch manners or modes of operation during transmissions of individual units of programing, and that they can be monitored.
to at least one receiver station,	Column 17 lines 49-53.	Figure 6 illustrates one possible configuration of equipment in a home or office or other television and/or radio receiving site. Consideration of Figure 6 is facilitated by consideration, first, of individual examples of the types of co-ordinated presentations that the signal apparatus and methods described here can permit.
with said remote intermediate data transmitter station including (i) one of a broadcast transmitter and a cablecast transmitter	Column 10 lines 18-20	...an intermediate transmission point whether it be a broadcast station transmitting only a single channel of programing or a cable system cablecasting many channels.
	and lines 46-47.	...cable channel modulators, 83, 87, and 91, and channel combining and multiplexing system, 92.
for transmitting at least one instruct signal which is effective at said at least one receiver station to instruct	Column 19 lines 14-15,	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 45-49.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder,

		203, and transferred to microcomputer, 205.
one of a first computer and a processor	Column 19 lines 48-49.	These signals instruct microcomputer, 205, to generate several graphic video overlays,....
to store operating instructions	Column 19 lines 45-53.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, ... upon command. Subsequently....
associated with at least one of a television program and a television commercial;	Column 19 line 45.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening,....
(ii) a plurality of selective transfer devices, each operatively connected to said one of a broadcast transmitter and a cablecast transmitter for communicating said data;	Column 10 lines 41-47.	by means of conventional switches (here matrix switch, 75), to one or more video recorder/players, 76 and 78, and/or to equipment that outputs them over various channels to the cable system's field distribution system, 93, which equipment includes here cable channel modulators, 83, 87, and 91, and channel combining and multiplexing system, 92.
(iii) a data receiver for receiving information from	Column 10 lines 61-66.	Incoming programing transmissions are received at the relevant receiver points, antennas, 50, 57, and 60, and other means, 62. They are fed along the conventional paths described above. At distribution amplifiers, 63 through 70, each incoming feed is split into two paths.
at least one origination transmitter station;	Column 19 lines 60-63.	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission.
(iv) a control signal detector; and	Column 11 lines 3-5.	Signal processor, 71, has means, described above, to identify and separate the instruction and information signals....
(v) one of a controller and a second computer capable of controlling at least one of said plurality of selective transfer	Column 11 lines 15-17, and lines 44-46.	Cable program controller and computer, 73, is the central automatic control unit for the transmission facility. Controller/computer, 73, has means for communicating control information with

devices,		matrix switch, 75, and video recorder/players, 76 and 78.
said remote intermediate data transmitter station adapted to (i) detect the presence of at least one control signal,	Column 11 lines 3-5,	Signal processor, 71, has means, described above, to identify and separate the instruction and information signals from their associated programing....
	with lines 38-39.	By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74,....
said at least one control signal operating at said remote intermediate data transmitter station to control communication	Column 11 lines 38-46,	By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74, and/or from a remote site via network, 98, controller/computer, 73, can determine when and on what channel or channels the head end facility should transmit the programing. Controller/computer, 73, has means for communicating control information with matrix switch, 75, and video recorder/players, 76 and 78.
	and lines 50-57.	For example, if controller/computer, 73, determines that programing incoming via receiver, 53, should be transmitted immediately to the field distribution system, 93, via cable channel modulator, 87, controller/computer, 73, instructs matrix switch, 75, to configure its switches so as to transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87.
of said at least one instruct signal,	Column 4 lines 5-13.	These techniques employ signals embedded in programs. The advantage of such embedded signals, as compared to header and trailer signals, is that they cannot become separated inadvertantly from the programing and, thereby, inhibit automatic processing, that they can convey signals to equipment that must switch manners or modes of operation during transmissions of individual units of programing, and that they can be monitored.
	Column 11 lines 38-39.	By comparing identification signals on the incoming programing with the programing schedule....
	Column 19 lines 14-15.	...to pass all program and channel identifiers on all programing being cablecast on the

		multi-channel system.
(ii) to control the communication of said at least one instruct signal in response to said detected at least one control signal, and	Column 11 lines 54-57.	...transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87.
(iii) to deliver at said one of said broadcast transmitter and said cablecast transmitter said at least one instruct signal, said method comprising the steps of:	Column 19 lines 14-15,	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	lines 20-23,	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.
	and lines 45-53.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command. Subsequently,...
(1) receiving said at least one instruct signal at said at least one origination transmitter station;	Column 19 lines 60-63,	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission.
	with lines 45-53.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command. Subsequently,...
(2) delivering said at least one instruct signal to at least one origination transmitter;	Column 19 lines 60-63, with lines 45-53.	See above.
(3) receiving said at least one control	Column 19 lines 60-63,	See above citation.

signal at said at least one origination transmitter station; and	with column 11 lines 38-39.	By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74,....
(4) delivering said at least one control signal to said at least one origination transmitter before a specific time.	Column 19 lines 60-63 and line 45. Column 19 lines 20-23.	*See above citations.* Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.

8. Claim 9

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 8, further comprising the step of embedding a specific one of said at least one control signal in one of	Page 381 line 11 to page 382 line 14.	Shortly before commencing to transmit the television programming of unit Q, at a time when all controlled intermediate transmission stations are receiving and retransmitting said network transmission (which the station of Fig. 6 and said second station each receives at a receiver, 53, and transmits via a modulator, 83), said program originating studio embeds in the normal transmission location of said transmission and transmits a second SPAM message. Said second message is addressed to ITS computers, 73, and consists of a "01" header, a particular execution segment, appropriate meter-monitor information, padding bits as required, particular information segment instruction information, and an end of file signal. (Hereinafter, said message is called the "load-set-information message (#10)".) Transmitting said message causes the decoders of the signal processing systems, 71, of said stations that receive programming transmissions from the distribution amplifiers, 63, to detect and input said message to the computers, 73, of said stations. Receiving said message causes each of said computers, 73, to load said information segment instruction information at particular

		RAM. Then receiving said end of file signal causes each of said computers, 73, to execute the instruction information of so loaded as an compiled, machine language job. Executing said instruction information causes said computers, 73, each to load the information of said files, PROGRAM.EXE and DATA_OF.ITS, at particular program-set-to- transmit and data-set-to-transmit RAM memories of computer, 73, and each to cause a generator, 82, to cease embedding any other signal information in the normal transmission location and to transmit information of a SPAM end of file signal. (Said other signal information may include, for example, teletext information, and in so causing said generators, 82, to cease embedding said other information--for example, said teletext--transmitting said message causes pluralities of ultimate receiver stations that are subscriber stations of said intermediate transmission stations to cease receiving said other information--for example, said teletext.)
(i) said at least one instruct signal and	Page 381 lines 11-24. Page 86 lines 12-14.	*See above.* (Hereinafter, the preferred normal location for transmitting signals in any given communication medium is called, the "normal transmission location".)
(ii) an information transmission containing said at least one instruct signal	Page 381 lines 11-14.	*See above.*
before transmitting said at least one instruct signal to said remote intermediate data transmitter station.	Page 382 lines 15-27.	Then said program originating studio starts to transmit the conventional television programming of unit Q. Immediately after commencing to transmit said programming of Q, said studio embeds in the normal transmission location of the transmission of said programming and transmits a particular SPAM message is addressed to URS signal processors, 200, and that causes ultimate receiver stations to combine their microcomputers, 205, to the computer system of the transmission of said program originating studio. (Said message and the functioning that said message causes are described more fully below, and

		hereinafter, said message is called the "align-URS- microcomputers-205 message (#10)".)

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 8, further comprising the step of embedding a specific one of said at least one control signal in one of	Column 19 lines 42-44.	Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission.
	Column 4 lines 5-13.	These techniques employ signals embedded in programs. The advantage of such embedded signals, as compared to header and trailer signals, is that they cannot become separated inadvertantly from the programing and, thereby, inhibit automatic processing, that they can convey signals to equipment that must switch manners or modes of operation during transmissions of individual units of programing, and that they can be monitored.
	Column 11 lines 38-46.	By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74, and/or from a remote site via network, 98, controller/computer, 73, can determine when and on what channel or channels the head end facility should transmit the programing. Controller/computer, 73, has means for communicating control information with matrix switch, 75, and video recorder/players, 76 and 78.
(i) said at least one instruct signal and	Column 19 lines 14-15.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
(ii) an information transmission containing said at least one instruct signal	Column 19 lines 42-44.	Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission.
before transmitting said at least one instruct signal to said remote intermediate data transmitter	Column 19 lines 20-23.	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.

station.		

9. Claim 10

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 8, wherein said specific time is a scheduled time of transmitting	Page 366 lines 19-20.	Subsequently, at the scheduled time of the playing of Q, the station of Fig. 6 is transmitting via modulator, 83,
one of said at least one instruct signal and information associated with said at least one instruct signal from said remote intermediate data transmitter station,	Page 367 line 25 to page 368 line 7.	Causing recorder, 76, to play causes recorder, 76, to transmit programming of Q, via matrix switch, 75, and modulator, 83, to field distribution system, 93, and also causes recorder, 76, to input the programming of Q to decoder, 77. Immediately after commencing to transmit said programming of Q, recorder, 76, plays and transmits three SPAM messages that are embedded in the prerecorded programming of Q. The first message is addressed to URS signal processors, 200, and causes subscriber stations that are tuned to the channel of transmission of said modulator, 83, to combine their microcomputers, 205, to the computer system of said transmission, which transmission is originated by said recorder, 76. (Said message and the functioning that said message causes are described more fully below, and hereinafter, said message is called the "align-URS- microcomputers-205 message (#9)".)
and said at least one control signal is effective at said remote intermediate data transmitter station to control said at least one of said plurality of selective transfer devices at different times.	Page 358 line 26 to page 360 line 1.	At the aforementioned interval Q time prior to the scheduled playing of Q, particular preprogrammed preplay-and- generate instructions cause computer, 73, to commence said program instruction set generation. Said instructions cause computer, 73, to cause matrix switch, 75, to switch the input from recorder, 76, to no output; to cause recorder, 76, to position the start of unit Q at its play head; to cause decoder, 77, to commence detecting signals on all video lines from the beginning of the normal transmission pattern to the end of the last detectable line of the full video frame; then to cause recorder, 76, to commence

		playing which causes recorder, 76, to transmit and decoder, 77, to detect a particular SPAM message. (Hereinafter, said message is called the "generate-set-information message (#9)".) Said message is addressed to ITS computers, 73, and contains a particular execution segment, appropriate meter-monitor information, padding bits as required, an information segment whose information is the intermediate generation set of Q, and an end of file signal. (Hereinafter, the intermediate generation set that causes any given intermediate transmission station to generate a program instruction set of an instance of the transmission of the programming of program unit Q is called the "intermediate generation set of Q".) Detecting said message causes decoder, 77, to transmit said message to computer, 73, and receiving said message at computer, 73, causes particular SPAM decoder apparatus of computer, 73, (which apparatus is analogous to SPAM- controller, 205C, at microcomputer, 205, above and is not distinguished from computer, 73, hereinafter) to execute particular controlled functions. In the fashion of the first message of the "Wall Street Week" example at microcomputer, 205, computer, 73, is caused to load information of said intermediate generation set at particular RAM. Then receiving the end of file signal that ends said message causes computer, 73, to execute particular additional instructions of said controlled functions. Executing said instructions, causes computer, 73, to cause recorder, 76, to cease playing and position the start of the unit Q conventional television programming at the play head of recorder, 76; to cause decoder, 77, to commence detecting information in the normal transmission location alone; to cause stripper, 81, and generator, 82, to prepare to commence stripping and embedding information, respectively, in the normal transmission location; and to execute the information of said intermediate generation set as a compiled, machine language job.
	Page 369 lines 3-8;	Causing recorder, 76, to play unit Q causes the decoder, 77, of the station of Fig. 6 then to detect a series of SPAM messages that are

		embedded in the programming of Q and are addressed to ITS computers, 73. Detecting said messages causes decoder, 77, to transfer said messages to computer, 73.
	and lines 23-30.	Receiving said transmit-data-module-set message (#9) causes computer, 73, to generate a particular first outbound SPAM message that includes information of the aforementioned data file, DATA_OF.ITS, whose information constitutes a complete instance of a data module set of Q and to cause said message to be embedded in the transmission of the programming of Q and transmitted to field distribution system, 93, in the following fashion.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 8, wherein said specific time is a scheduled time of transmitting one of said at least one instruct signal and information associated with said at least one instruct signal from said remote intermediate data transmitter station,	Column 11 lines 21-31,	Such input information might include the cable television system's complete programing schedule, with each discrete unit of programing identified with a unique program code (which in the case of advertising might be a purchase order number). Such input information might also indicate when and where the cable head end facility should expect to receive the programing. Such input information might also indicate when and on which channel or channels the head end facility should transmit each program unit to cable field distribution system, 93.
	lines 38-46,	By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74, and/or from a remote site via network, 98, controller/computer, 73, can determine when and on what channel or channels the head end facility should transmit the programing. Controller/computer, 73, has means for communicating control information with matrix switch, 75, and video recorder/players, 76 and 78.
and said at least one control signal is effective at said remote intermediate	and lines 57-65.	Similarly, if controller/computer, 73, determines that incoming programing should be recorded for delayed transmission, controller/ computer, 73, selects a video

data transmitter station to control said at least one of said plurality of selective transfer devices at different times.		recorder/player, 76 or 78, in a predetermined fashion, to record the incoming programing, instructs matrix switch, 75, to transfer the programing to the designated recorder/player, 76/78, and instructs the recorder/player, 76 or 78, to turn on and record the programing.
	Column 11 line 57 to column 12 line 8.	*See above citation, plus:* Recorder/players, 76 and 78, can communicate programing with each other through matrix switch, 75. If controller/computer, 73, determines at any time that it is necessary to reorganize the order in which programing units are stored on either recorder/player or on both, controller/computer, 73, can use techniques for reorganizing files stored on multidisk units, which techniques are well known to computer operators, and order the execution of such techniques by passing appropriate instructions to of matrix switch, 75, and recorder/ players, 76 and 78.
	Column 12 lines 27-35.	Decoders, 77 and 79, inform controller/computer, 73, what specific programing is loaded on recorder/players, 76 and 78 respectively, and what signals it contains. (Among other signals, a program unit could contain signals that would inform controller/computer, 73, of the distance to the beginning and end of the program unit which signals would facilitate operation of recorder/players such as 76 and 78.)
	Column 16 lines 26-29.	...by locating the identifier signals in the audio and/or video and/or other parts of the programing that are conventionally recorded by, for example, conventional video cassette recorders,....

10. Claim 11

A transmitter station (e.g., a cable head end) controls at least one of a plurality of receiver stations (e.g., television viewer stations), each of which (i) includes a mass medium program receiver (e.g., a television receiver), a signal detector, a computer or processor, (ii) is adapted to detect a control signal that

selects or executes operating instructions associated with the mass medium programming that completes or supplements a mass medium program, and (iii) is adapted to input a subscriber reaction to an offer communicated in the mass medium program. The transmitter station receives and delivers to a transmitter an instruct signal which is effective at the at least one receiver station to store the operating instructions, (e.g., it loads a computer program). The transmitter station receives and delivers to the transmitter (i) an identifier that ***designates*** (WEBSTER'S New Collegiate Dictionary, copyright 1977, defines this term as "1 a : to point out the location of") one of the instruct signal and the subscriber reaction and (ii) the control signal (e.g., a portion of a message stream which enables selection or execution of a portion of the computer program.) The transmitter station transmits the instruct signal, the identifier, and the control signal.

With regard to the functioning of the transmitter station, support for claim 8 is found at pages 374-390 of the specification. With regard to the corresponding functionality of the receiver station, support is found at pages 468-516. (As explained above in section **Error! Reference source not found.**, the correspondence between these two passages is clear through the use of a narrative sequence in each passage which uses carefully defined message names and processing functions associated with more than thirteen messages.) Claim 11 is also supported independently at pages 354-374, although not shown in the table below. Claim 11 finds support in Patent No. 4,694,490, from which priority is claimed, in the passages cited below.

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language

A method of controlling at least one of a plurality of receiver stations,	Page 374 line 32 to	In example #10, a particular program originating studio transmits the commercial of program unit Q in a network transmission and controls a plurality of intermediate transmission stations each of which controls, in turn, a plurality of subscriber stations that are ultimate receiver stations. The station of Fig. 6 is one intermediate transmission station controlled by said studio. The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83. The program unit Q of example #10 is identical to the program unit Q of example #9, and each intermediate transmission station must generate transmit its own, station specific program instruction set and data module set information that contains its own, station specific formula- and-item-of-this-transmission information.
	page 375 line 10, with page 390 lines 30-31,	Fig. 7 exemplifies one embodiment of an ultimate receiver station;
	and page 470 lines 9-11.	At the station of Fig. 7 and 7F (which station is a subscriber station of the intermediate station of Fig. 6), in the fashions described above,
each of which (i) includes a mass medium program receiver for receiving a mass medium program which comprises audio,	Page 470 lines 19-21.	...and to display the television information of said transmission (that is, information of said audio and video) at monitor, 202M.
a signal detector,	Page 481 lines 2-12.	Receiving said message at the station of Figs. 7 and 7F causes decoder, 203, to detect the end of file signal of said message and to process the next received SPAM information as information of the header of a SPAM message, thereby causing said decoder, 203, to commence identifying and processing the individual SPAM messages of the SPAM information subsequently embedded in the transmission of the programming of Q. In so doing, receiving said message causes decoder apparatus of the station of Figs. 7 and 7F to commence executing controlled functions in response to SPAM messages

		transmitted by said program originating studio.
and at least one of a computer and a processor,	Page 479 lines 3-18.	...to cause a communications link to be established that links said decoder, 282, via matrix switch, 259, with the controller, 20, of signal processor, 200; to transfer said message to controller, 20; and to transfer particular preprogrammed source mark information that identifies said decoder, 282, as the local source inputting said message to controller, 20. (Decoder, 145, is not preprogrammed with controlled-function-invoking information that matches the execution segment information of said message, and decoder, 145, discards all information of said message.) Receiving said message causes controller, 20, to combine microcomputer, 205, to the computer system of said program originating studio and to cause the video and audio output transmissions of microcomputer, 205, to be inputted to monitor, 202M.
	Page 45 line 21 to page 46 line 2.	Execution segment information includes the subscriber station apparatus that the command of said segment addresses and the controlled functions said apparatus is to perform. ("ITS" refers, hereinafter, to intermediate transmission station apparatus, and "URS" refers to ultimate receiver station apparatus.) Examples of addressed apparatus include: ITS signal processors (in 71 in Fig. 6), ITS controller/computers (73 in Fig. 6), URS signal processors (200 in Fig. 7), URS microcomputers (205 in Fig. 7),
	Page 46 lines 8-11.	Examples of controlled functions include: Load and run the contents of the information segment.
(ii) is adapted to detect the presence of at least	Page 481 lines 2-12.	Receiving said message at the station of Figs. 7 and 7F causes decoder, 203, to detect the end of file signal of said message and to process the next received SPAM information as information of the header of a SPAM message, thereby causing said decoder, 203, to commence identifying and processing the individual SPAM messages of the SPAM information subsequently embedded in the transmission of the programming of Q. In so

		doing, receiving said message causes decoder apparatus of the station of Figs. 7 and 7F to commence executing controlled functions in response to SPAM messages transmitted by said program originating studio.
one control signal that does at least one of	Page 59 lines 28-33.	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
(a) selects	Page 484 lines 12-18.	At the station of Figs. 7 and 7F, receiving the program- instruction-set message (#10) transmitted by the intermediate transmission station of Fig. 6 causes said message to be detected at decoder, 203, and causes decoder, 203, to load and execute at microcomputer, 205, the information segment of said message (which is the program instruction set of Q.1 and is the output file, PROGRAM.EXE, of said station).
and (b) executes operating instructions associated with mass medium programming,	Page 24 lines 14-16.	(Hereinafter, such a set of instructions that is loaded and run is called a "program instruction set.")
	Page 484 lines 12-18.	*See immediately above.*
said mass medium programming one of completing and	Page 492 lines 26-30.	causing the emission of sound of said audio information, and the subscriber of said station can hear said announcer's voice saying: "forty-six".
	Page 491 lines 30-35.	Said studio then transmits audio information of the announcer saying: "Super Discount Supermarkets makes this offer--today only--at cost, and this offer represents a saving to you of over."
	Page 493 lines 16-21.	Then after an interval that is long enough for each subscriber station to emit sound of its specific audio RAM information, said studio transmits audio information of the announcer saying: "percent."
	Page 496 lines 12-27.	At printer, 221, the printed so-called "hard copy" of said offer and coupon information emerges as: (*see coupon*).

supplementing said mass medium program,	Page 494 lines 30-34.	said studio transmits audio information of an announcer saying, "To confirm this very special limited offer to you in writing, we are now printing, at your printer ..."
and (iii) is adapted to input a subscriber reaction to an offer communicated in said mass medium program, said method comprising the steps of:	Page 492 lines 12-23.	Receiving said 2nd commence-outputting message (#10) causes each subscriber station that has completed the generation of first audio image information at audio RAM to combine its specific image information to the conventional audio information transmitted by said studio and to emit sound of its combined specific audio information and its received conventional audio information at its specific monitor, 202M. At the station of Fig. 7 and 7F, decoder, 203, detects the information of said message, and receiving said 2nd commence-outputting message (#10) causes decoder, 203, to execute "SOUND ON" at the microcomputer, 205 of said station.
	Page 491 lines 30-35.	*See above.*
(1) receiving an instruct signal at	Page 386 lines 7-9.	Receiving the information of the particular program- instruction-set message (#10) of the computer, 73, of its station causes a generator, 82,....
	Page 385 line 24 page 386 line 3..	Then, automatically, each of said computers, 73, selects and transmits to the generator, 82, of its station, information of a ... header; ... any required padding bits; complete information of the program instruction set that is at its program-set-to transmit RAM memory; and information of a SPAM end of file signal. Said selected and transmitted information that each of said computers, 73, transmits is complete information of the particular program- instruction-set message (#10) of said computer, 73. (Receiving said message causes the apparatus of the
a transmitter station;	"intermediate station"	intermediate station of Fig. 6 to transmit the program instruction set of Q.1 in the program-instruction-set message (#10) of said station....
(2) delivering said instruct signal to a transmitter at said transmitter station,	Page 386 lines 9-14.	...to embed said information in the normal transmission location of the programming of Q transmission being transmitted via said generator, 82, to the field distribution system, 93, of said station, thereby transmitting the particular program-instruction-set message (#10) of

		said station to said system, 93.
	Page 484 lines 1-6.	Then said studio transmits said transmit-and-execute- program-instruction -set message (#10), causing each intermediate transmission station, including the station of Fig. 6 and said second intermediate transmission station, to transmit its specific program-instruction-set message (#10), as described above.
said instruct signal being effective at said at least one of said plurality of receiver stations to store said operating instructions;	Page 484 lines 12-18.	At the station of Figs. 7 and 7F, receiving the program- instruction-set message (#10) transmitted by the intermediate transmission station of Fig. 6 causes said message to be detected at decoder, 203, and causes decoder, 203, to load and execute at microcomputer, 205, the information segment of said message (which is the program instruction set of Q.1 and is the output file, PROGRAM.EXE, of said station).
(3) receiving, at said transmitter station,	Page 375 lines 4-6.	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
	Page 387 lines 19-31.	Subsequently, said program originating studio embeds in the normal transmission location of said network transmission and transmits a further series of messages that are addressed to URS microcomputers, 205, and that are described more fully below. (Hereinafter, said messages are called [in the order in which said messages are transmitted at said studio]: the "1st commence-outputting message (#10)", the "2nd commence-outputting message (#10)", the "3rd commence-outputting message (#10)", the "1st cease-outputting message (#10)", the "4th commence-outputting message (#10)", the "5th commence-outputting message (#10)", the "6th commence-outputting message (#10)", and the "2nd cease- outputting message (#10)".)
an identifier	Page 492 lines 1-5.	Then said program originating studio embeds and transmits said 2nd commence-outputting message (#10). Said message consists of a "00" header; particular audio-overlay execution segment information that is addressed to URS microcomputers, 205

that designates one of said instruct signal	Page 493 lines 23-29.	Receiving said 2nd commence-outputting message (#10) causes each subscriber station that outputs audio information in this fashion, immediately after so transmitting one instance of its specific information at audio RAM, to continue executing instructions of its specific program instruction set at the next instruction following the aforementioned pause.
and said subscriber reaction to	Page 493 lines 12-23.	Receiving said 2nd commence-outputting message (#10) causes each subscriber station that has completed the generation of first audio image information at audio RAM to combine its specific image information to the conventional audio information transmitted by said studio and to emit sound of its combined specific audio information and its received conventional audio information at its specific monitor, 202M. At the station of Fig. 7 and 7F, decoder, 203, detects the information of said message, and receiving said 2nd commence-outputting message (#10) causes decoder, 203, to execute "SOUND ON" at the microcomputer, 205 of said station.
said offer communicated in said mass medium program;	Page 491 lines 30-35.	Said studio then transmits audio information of the announcer saying: "Super Discount Supermarkets makes this offer--today only--at cost, and this offer represents a saving to you of over."
(4) receiving said at least one control signal at said transmitter station;	Page 375 lines 4-6,	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
	with page 382 line 28 to page 383 line 8.	After an interval that is sufficient to allow apparatus at each ultimate receiver station so to combine, said studio embeds in said transmission and transmits a particular SPAM message whose execution segment is of the aforementioned pseudo command. Transmitting said message causes particular decoder apparatus at said ultimate receiver stations to detect an end of file signal and to commence identifying and processing the individual SPAM messages of the SPAM information subsequently embedded in the transmission of the programming of Q. (Said message and the functioning that said message causes are described more fully

		below, and hereinafter, said message is called the "synch- SPAM-reception message (#10)".) Thereafter, embedding and transmitting any given SPAM message in said transmission invokes a controlled function or functions at particular ones of said decoder apparatus.
	Page 480 line 26 to page 481 lines 21.	After an interval that is sufficient to allow apparatus at each subscriber station so to combine and interconnect, said studio transmits said synch-SPAM-reception message (#10), embedded in the transmission of said programming. Said message consists of a "01" header, information of the aforementioned pseudo-command execution segment, appropriate meter-monitor information that includes the "program unit identification code" information of said programming of Q, any required padding bits, an information segment that contains no binary information, and information of a SPAM end of file signal. Receiving said message at the station of Figs. 7 and 7F causes decoder, 203, to detect the end of file signal of said message and to process the next received SPAM information as information of the header of a SPAM message, thereby causing said decoder, 203, to commence identifying and processing the individual SPAM messages of the SPAM information subsequently embedded in the transmission of the programming of Q. In so doing, receiving said message causes decoder apparatus of the station of Figs. 7 and 7F to commence executing controlled functions in response to SPAM messages transmitted by said program originating studio. (In the fashions described above, receiving said message at decoders, 145 and 282, causes said said decoders, 145 and 282, to process the meter-monitor information of said message and to transmit meter-monitor information to the onboard controller, 14A, of signal processor, 200, and causes said onboard controller, 14A, to initiate signal record information of said programming of Q and process in the fashions described above that include transferring recorded signal record information to one or more remote auditing stations.)
(5) delivering said identifier,	Page 375 lines 4-6.	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits

		said transmission immediately via modulator, 83.
	Page 387 lines 19-31.	Subsequently, said program originating studio embeds in the normal transmission location of said network transmission and transmits a further series of messages that are addressed to URS microcomputers, 205, and that are described more fully below. (Hereinafter, said messages are called [in the order in which said messages are transmitted at said studio]: the "1st commence-outputting message (#10)", the "2nd commence-outputting message (#10)", the "3rd commence-outputting message (#10)", the "1st cease-outputting message (#10)", the "4th commence-outputting message (#10)", the "5th commence-outputting message (#10)", the "6th commence-outputting message (#10)", and the "2nd cease- outputting message (#10)".)
and said at least one control signal to said transmitter at said transmitter station; and	Page 382 line 28 to page 383 line 8.	After an interval that is sufficient to allow apparatus at each ultimate receiver station so to combine, said studio embeds in said transmission and transmits a particular SPAM message whose execution segment is of the aforementioned pseudo command. Transmitting said message causes particular decoder apparatus at said ultimate receiver stations to detect an end of file signal and to commence identifying and processing the individual SPAM messages of the SPAM information subsequently embedded in the transmission of the programming of Q. (Said message and the functioning that said message causes are described more fully below, and hereinafter, said message is called the "synch- SPAM-reception message (#10)".) Thereafter, embedding and transmitting any given SPAM message in said transmission invokes a controlled function or functions at particular ones of said decoder apparatus.
(6) transmitting said instruct signal, said identifier,	Page 375 lines 4-6.	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
	Page 386 lines 9-14.	embed said information in the normal transmission location of the programming of Q transmission being transmitted via said

		generator, 82, to the field distribution system, 93, of said station, thereby transmitting the particular program-instruction-set message (#10) of said station to said system, 93
and said at least one control signal from said transmitter station.	Page 382 line 28 to page 383 line 8.	*See above.*
	Page 387 lines 19-31.	*See above.*

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
A method of controlling at least one of a plurality of receiver stations,	Column 17 lines 34-53.	Methods for Governing or Influencing the Operation of Equipment that is External to Conventional Television and Radio Sets by Passing Instruction and Information Signals that are Embedded in Television and Radio Programing Transmissions to Such External Equipment Signal processor apparatus have the ability to identify instruction and information signals in one or more inputted television and radio programing transmissions, identify and discriminate among one or more pieces of external equipment to which such signals are addressed, and transfer such signals to such equipment as directed. This permits many valuable techniques for facilitating the operation of such external equipment. Figure 6 illustrates one possible configuration of equipment in a home or office or other television and/or radio receiving site. Consideration of Figure 6 is facilitated by consideration, first, of individual examples of the types of co-ordinated presentations that the signal apparatus and methods described here can permit.
each of which (i)	Column 3 lines 48-51.	Another method has application at receiver sites such as private homes or public places like theaters, hotels, brokerage offices, etc., whether commercial establishments or not.
includes a mass medium program receiver for receiving a mass medium program which	Column 19 lines 1-4.	In the same fashion, microcomputer, 205, may also instruct signal processor, 200, to monitor single or multiple television channels and/or radio channels for programing of interest to play or record.

comprises audio,		
a signal detector,	Column 18 lines 14-16.	TV signal decoder, 203, detects signals in the programing transmission on the channel which signals it transfers to monitor or processor, 204.
and at least one of a computer and a processor,	column 17 line 62 to column 18 line 4.	Signal processor, 200, is always operating and monitors all incoming channels. It can convey such signals to microcomputer, 205, whenever it receives them. TV signal decoder, 203, can also identify such signals but only in the one TV channel transferred by box, 201, to TV set, 202, and then only when TV set, 202, is on and operating. Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
(ii) is adapted to detect the presence of at least one control signal that does at least one of (a) selects and (b) executes operating instructions associated with mass medium programming,	Column 18 lines 47-49.	In this example, microprocessor, 205, is programed to hold a portfolio of stocks and to receive news about these particular stocks and about the industries they are in.
	Column 19 lines 14-15,	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	with lines 20-29.	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."
	Column 19 lines 63 to column 20 line 2.	This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

	Column 19 lines 45-53.	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
said mass medium programming one of completing and	Column 19 line 67 to column 20 line 2.	The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.
supplementing said mass medium program,	Column 19 lines 67 to column 20 line 1.	The viewer then sees a microcomputer generated graphic of his own stocks' performance...
	Column 19 lines 59-60.	Then the host says, "And here is what your portfolio did."
and (iii) is adapted to input a subscriber reaction to	Column 19 lines 63-60.	This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204.
an offer communicated in said mass medium program, said method comprising the steps of:	Subscriber responds to the offer and causes microcomputer 205 to be "programed" [sic]; *see* column 18 lines 46-49.	In this example, microprocessor, 205, is programed to hold a portfolio of stocks and to receive news about these particular stocks and about the industries they are in.
(1) receiving an instruct signal at a transmitter station;	Column 10 lines 24-28.	FIGS. 3A, 3B and 3C illustrates one instance of such use. Figure 3 illustrates the use of Signal Processing Apparatus and Methods at a cable television system "head end" transmission facility that cablecasts several channels of television programing.
	Column 19 lines 60-63.	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission.
	Column 19 lines 42-44.	Microcomputer, 205, is preprogramed to

		respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission.
	Column 10 lines 61-63.	Incoming programing transmissions are received at the relevant receiver points, antennas, 50, 57, and 60, and other means, 62.
	Column 11 lines 38-42.	By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74, and/or from a remote site via network, 98, controller/computer, 73, can determine when and on what channel or channels the head end facility should transmit the programing.
(2) delivering said instruct signal to a transmitter at said transmitter station,	Column 11 lines 54-57.	...controller/computer, 73, instructs matrix switch, 75, to configure its switches so as to transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87.
	Column 4 lines 5-13.	These techniques employ signals embedded in programs. The advantage of such embedded signals, as compared to header and trailer signals, is that they cannot become separated inadvertantly from the programing and, thereby, inhibit automatic processing, that they can convey signals to equipment that must switch manners or modes of operation during transmissions of individual units of programing, and that they can be monitored.
	Column 19 lines 13-15.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
said instruct signal being effective at said at least one of said plurality of receiver stations to store said operating instructions;	Column 19 lines 42-53.	Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, ... upon command. Subsequently...
(3) receiving, at said transmitter station, an identifier	Column 10 lines 61-63.	Incoming programing transmissions are received at the relevant receiver points, antennas, 50, 57, and 60, and other means, 62.
	Column 4 lines 5-13.	These techniques employ signals embedded in programs. The advantage of such embedded

		signals, as compared to header and trailer signals, is that they cannot become separated inadvertantly from the programing and, thereby, inhibit automatic processing, that they can convey signals to equipment that must switch manners or modes of operation during transmissions of individual units of programing, and that they can be monitored.
	Column 11 lines 38-39.	By comparing identification signals on the incoming programing with the programing schedule....
	Column 19 lines 14-15.	all program and channel identifiers on all programing being cablecast on the multi-channel system
that designates one of	Column 18 lines 1-4.	Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
said instruct signal and	Column 19 lines 64-67.	This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204.
	Column 19 lines 48-53.	These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
said subscriber reaction to said offer communicated in said mass medium program;	Column 18 lines 1-4.	Decoder, 203, transfers all received signals to processor or monitor, 204, which identifies the signals as addressed to microcomputer, 205, and transfers them to microcomputer, 205.
	Column 19 lines 46-48;	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205.
	and lines 59-64.	Then the host says, "And here is what your portfolio did." At this point, an instruction signal is generated in the television studio originating the programing and is transmitted

		in the programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205.
(4) receiving said at least one control signal at said transmitter station;	Column 10 lines 61-63. Column 11 lines 38-39.	Incoming programing transmissions are received at the relevant receiver points, antennas, 50, 57, and 60, and other means, 62. By comparing identification signals on the incoming programing with the programing schedule received earlier from local input, 74,....
(5) delivering said identifier, and said at least one control signal to said transmitter at said transmitter station; and	Column 11 lines 54-57. Column 4 lines 5-13.	... controller/computer, 73, instructs matrix switch, 75, to configure its switches so as to transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87. These techniques employ signals embedded in programs. The advantage of such embedded signals, as compared to header and trailer signals, is that they cannot become separated inadvertantly from the programing and, thereby, inhibit automatic processing, that they can convey signals to equipment that must switch manners or modes of operation during transmissions of individual units of programing, and that they can be monitored.
(6) transmitting said instruct signal, said identifier, and said at least one control signal from said transmitter station.	Column 19 lines 13-29. Column 19 lines 45-53.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system. Signal processor, 200, receives this instruction from microcomputer, 205, at its processor or monitor, 12, which reacts, in a predetermined fashion by passing also externally to microcomputer, 205, all signals that it passes to buffer/ comparator, 14. Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week." When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder,

		203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
	Column 19 line 60 to column 20 line 2.	At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

11. Claim 12

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein at least one of said at least one control signal and said identifier is embedded in one of a television signal and	Page 324 line 26.	TV receivers, 53, 54, 55, and 56.
	Page 375 lines 4-6.	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.
	Page 382 lines 15-21.	Then said program originating studio starts to transmit the conventional television programming of unit Q. Immediately after commencing to transmit said programming of Q, said studio embeds in the normal transmission location of the transmission of said programming and transmits a particular SPAM message is addressed to URS signal processors, 200,
	Page 386 line 7-20.	Receiving the information of the particular program- instruction-set message (#10) of the computer, 73, of its station causes a generator, 82, to embed said information in the normal transmission location of the

		programming of Q transmission being transmitted via said generator, 82, to the field distribution system, 93, of said station, thereby transmitting the particular program-instruction-set message (#10) of said station to said system, 93. (After transmitting the aforementioned transmit-data- module-set message (#10) and before transmitting a particular commence-outputting message (#10) that is discussed more fully below, said program originating studio embeds and transmits other SPAM messages that are addressed to URS microcomputers, 205.
a signal containing a television program.	Page 325 lines 1-4.	...apparatus that outputs said transmissions over various channels to the cable system's field distribution system, 93, which apparatus includes cable channel modulators, 83, 87, and 91, and channel combining and multiplexing system, 92.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein at least one of said at least one control signal and said identifier is embedded in one of a television signal and a signal containing a television program.	Column 19 lines 14-15,	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	lines 20-23,	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.
	Column 19 lines 13-15.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 42-44.	Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission.

12. Claim 13

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein said at least one control signal is effective to output a viewer order for one of a designated product and a designated service, said method further comprising the steps of:	Page 472 lines 13-23.	Receiving said message causes controller, 20, to load and execute said check-for-entered-information-and-process instructions, and executing said instructions causes controller, 20, to determine that TV567# information exists at said last-local-input-# memory and to cause an instance of particular covert control information (which is preprogrammed in said instructions) to be placed at particular control- function-invoking information memory of the controller, 39, of decoder, 145, and also at particular control-function-invoking information memory of the controller, 39, of decoder, 203.
	Page 471 lines 14-21.	Each subscriber—in particular, the subscriber of the station of Figs. 7 and 7F, said second subscriber, and said third subscriber—enters TV567#, in a fashion well known in the art, at the keyboard of the specific local input, 225, of his own station which causes said input, 225, to transmit a particular preprogrammed process-local-input instruction and said TV567# information to the controller, 20, of the signal processor, 200, of said station.
	Page 473 lines 5-8.	...programming and transmits a particular second SPAM message that consists of an "01" header, particular execution segment information that is identical to said covert control information,....
	Page 474 lines 2-8.	Executing said generate-recipe-and-shopping-list instructions causes microcomputer, 205, to generate information of the specific fish curry recipe and fish curry shopping list of the family of the subscriber of the station of Figs. 7 and 7F; to cause said recipe and shopping list to be printed at printer, 221; and to retain information of said shopping list at particular memory.
communicating to said transmitter information which is effective at said at least one of said	Page 375 lines 4-6.	The station of Fig. 6 receives said network transmission at receiver, 53, and retransmits said transmission immediately via modulator, 83.

plurality of receiver stations to one of select and assemble specific information to communicate to a remote data collection site; and	Page 473 lines 3-13. Page 473 line 29 to page 474 line 1.	One minute later, said program originating studio embeds in the transmission of said "Exotic Meals of India" programming and transmits a particular second SPAM message that consists of an "01" header, particular execution segment information that is identical to said covert control information, appropriate meter-monitor information including unit code identification information that identifies the programming of the information segment of said message, padding bits as required, information segment of particular generate-recipe-and-shopping-list instructions, and an end of file signal. Receiving said message causes the controller, 39, of decoder, 203, to load and execute said generate-recipe-and- shopping-list instructions at microcomputer, 205, and to transfer particular meter-monitor information to the buffer/comparator, 14, of signal processor, 200, causing said buffer/comparator, 14, to increment the information of said signal record of meter information in the fashion described above.
transmitting said information to said at least one of said plurality of receiver stations.	Page 375 lines 4-6. Page 473 lines 2-13.	*See above.* One minute later, said program originating studio embeds in the transmission of said "Exotic Meals of India" programming and transmits a particular second SPAM message that consists of an "01" header, particular execution segment information that is identical to said covert control information, appropriate meter-monitor information including unit code identification information that identifies the programming of the information segment of said message, padding bits as required, information segment of particular generate-recipe-and-shopping-list instructions, and an end of file signal.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein said at least one control signal	Column 18 lines 47-48.	In this example, microprocessor, 205, is programed to hold a portfolio of stocks and to receive news about these particular stocks and

is effective to output a viewer order for one of a designated product and	Column 18 lines 63-68.	about the industries they are in. In a predetermined fashion, either microcomputer, 205, or signal processor, 200, instructs tuner, 223, to set cable converter box, 222, to the proper channel, and microcomputer, 200, may record the information in memory or transfer it to printer, 221, for printing.
a designated service, said method further comprising the steps of:	Column 18 line 63 to column 19 line 4.	*See above, plus...* In the same fashion, microcomputer, 205, may also instruct signal processor, 200, to monitor single or multiple television channels and/or radio channels for programing of interest to play or record.
	Column 19 lines 20-29.	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X. Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."
communicating to said transmitter information which is effective at said at least one of said plurality of receiver stations to one of select and assemble specific information to communicate to a remote data collection site; and	Column 11 lines 54-57	...controller/computer, 73, instructs matrix switch, 75, to configure its switches so as to transfer programing transmissions inputted from TV receiver, 53, to the output that leads to modulator, 87.
	Column 19 lines 14-15.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	Column 18 lines 50-56.	Several separate news services transmit news on different channels carried on the multi-channel cable transmission to converter boxes, 222 and 201, and to signal processor, 200. The news services preceed each news transmission with a unique signal that uniquely identifies the company or companies to which the news item refers and/or the industries.
	See also: column 9 line 68 to column 10 line 2; column 15 line 57 to column 16 line 24;	

	column 16 line 51 to column 17 line 9; column 8 lines 16-19 and lines 46-55.	
transmitting said information to said at least one of said plurality of receiver stations.	Column 18 lines 49-56. Column 19 lines 14-15.	*See above.* *See above.*

13. Claim 14

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein said at least one control signal comprises at least one downloadable processor instruction.	Page 385 line 24 to page 386 line 6.	Then, automatically, each of said computers, 73, selects and transmits to the generator, 82, of its station, information of a "01" header; information of a particular SPAM execution segment that is addressed to URS microcomputers, 205; its retained meter-monitor information; any required padding bits; complete information of the program instruction set that is at its program-set-to transmit RAM memory; and information of a SPAM end of file signal. Said selected and transmitted information that each of said computers, 73, transmits is complete information of the particular program- instruction-set message (#10) of said computer, 73. (Receiving said message causes the apparatus of the intermediate station of Fig. 6 to transmit the program instruction set of Q.1 in the program-instruction-set message (#10) of said station and causes the apparatus of said second intermediate station to transmit the program instruction set of Q.2 in the program-instruction-set message (#10) of said second station.)
	Page 484 lines 1-18.	Then said studio transmits said transmit-and-execute-program-instruction-set message (#10), causing each intermediate transmission station, including the station of Fig. 6 and said second intermediate transmission station, to transmit its specific program-instruction-set message (#10), as

		described above. Receiving the specific program-instruction-set message (#10) of its intermediate transmission station causes each ultimate receiver station to record one instance of the PROGRAM.EXE information in said message at particular RAM and execute the information so loaded as a machine language job. At the station of Figs. 7 and 7F, receiving the program-instruction-set message (#10) transmitted by the intermediate transmission station of Fig. 6 causes said message to be detected at decoder, 203, and causes decoder, 203, to load and execute at microcomputer, 205, the information segment of said message (which is the program instruction set of Q.1 and is the output file, PROGRAM.EXE, of said station).

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein said at least one control signal comprises at least one downloadable processor instruction.	Column 19 lines 14-15,	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	lines 20-23	Analyzing these identifier signals in a predetermined fashion, microcomputer, 205, determines that "Wall Street Week" is being televised on channel X.
	and lines 42-49.	Microcomputer, 205, is preprogramed to respond in a predetermined fashion to instruction signals embedded in the "Wall Street Week" programing transmission. When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205.

14. Claim 15

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein said mass medium program includes text.	Page 507 lines 5-7.	Said studio transmits video information of said person pointing to the upper left hand corner of the video screen, and the image of "TV568*" appears in said corner.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 11, wherein said mass medium program includes text.	Column 19 lines 53-59.	Subsequently in the program, the host says, "Here is what the Dow Jones Industrials did is the past week," and a studio generated graphic is pictured. The host then says, "Here is what the broader NASDAQ index did in the week past," and a studio generated graphic overlay is displayed on top of the first graphic.

15. Claim 16

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-tune signal that causes a receiver to receive a selected transmission.	Page 291 lines 9-20.	In the interval between said commence-enabling time and said 8:30 PM time, said head end is caused, in a predetermined fashion, to transmit a particular enabling SPAM message that consists of a "01" header, execution segment information that matches said enable-next-program-on-CC13 information, particular meter-monitor information, information segment information of particular enable-CC13 instructions and particular enable-WSW instructions that include particular enable-WSW-programming information, and an end of file signal on the frequency of said master control channel. (Hereinafter said message is called the "local- cable-enabling-message (#7).")
	Page 292 lines 7-11.	Receiving said message causes controller, 20, to load the enable-CC13 instructions and the enable-WSW instructions of the information segment of said message at particular RAM of controller, 20, and execute said

		instructions as the machine language instructions of one job.
	Page 294 lines 28-33.	Resulting in a match causes controller, 20, to execute a particular portion of said enable-CC13 instructions. Executing the instructions of said portion causes controller, 20, in the predetermined fashion of the said portion, to cause selected apparatus of the station of Fig. 4 to receive the cable channel 13 transmission,....
	Page 295 lines 6-7.	Then, automatically, controller, 20, causes a selected tuner, 214, to tune to the frequency of cable channel 13,....

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-tune signal that causes a receiver to receive a selected transmission.	Column 19 lines 14-15;	...pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 24-25.	Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220,....

16. Claim 17

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-activate signal that controls a switch or inputs power to an apparatus.	Page 303 lines 19-23,	In due course, but still before said 8:30 PM time, said program originating studio commences transmitting analog television information on its transmission frequency and embeds and transmits particular SPAM message information on lines 20, 21, 22, 23, 24, 25, 26, and 27.
	and page 304 lines 10-11.	(Hereinafter, each of said SPAM messages is called a "2nd- WSW-program-enabling-message (#7).")
	Page 443 lines 19-28.	Executing said additional 2nd-stage-enable-WSW-program

		instructions at the station of Fig. 7 causes controller, 20, first to cause the apparatus of said station to commence transferring the decrypted television information of the "Wall Street Week" program transmission to decoder, 203, and microcomputer, 205. Automatically, controller, 20, causes matrix switch, 258, to cease inputting the decrypted video information of said transmission to signal processor, 200, (at switch, 1), and to commence transferring said video information
	Page 444 lines 23-26.	At the station of Fig. 7, executing said additional 2nd-stage-enable-WSW-program instructions causes controller, 20, thereafter to cause the apparatus of said station to determine that monitor, 202M,
	Page 445 lines 6-8,	Receiving said 202M-is-not-on information causes controller, 20, under control of said additional 2nd-stage- enable-WSW-program instructions,
	and lines 24-25.	...to switch power on to monitor, 202M,....

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-activate signal that controls a switch or inputs power to an apparatus.	Column 19 lines 14-15,	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 27-28.	Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."

17. Claim 18

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-enable signal that causes a transfer device to transfer a signal to an output device.	Page 303 lines 19-23.	In due course, but still before said 8:30 PM time, said program originating studio commences transmitting analog television information on its transmission frequency and embeds and transmits particular SPAM message information on lines 20, 21, 22, 23, 24, 25, 26, and 27.
	Page 304 lines 10-11.	(Hereinafter, each of said SPAM messages is called a "2nd- WSW-program-enabling-message (#7).")
	Page 309 line 30 to page 310 line 8.	...the controller, 20, of the station of Fig. 4 (and causes controllers, 20, at other stations where so determining occurs) to execute particular additional 2nd-stage-enable-WSW-program instructions, and executing said instructions causes controller, 20, to cause the apparatus of the station of Fig. 4 to commence transferring the decrypted television information of the "Wall Street Week" program to microcomputer, 205, and monitor, 202M. Automatically, controller, 20, causes matrix switch, 258, to transfer the decrypted audio information inputted from decryptor, 107, to monitor, 202M, thereby causing monitor, 202M, to commence receiving said audio information and emitting sound in accordance with said audio information.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-enable signal that causes a transfer device to transfer a signal to an output device.	Column 19 lines 14-15.	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	Column 19 lines 24-29.	Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and

		tuner, 215, to tune appropriately to "Wall Street Week."

18. Claim 19

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-how-to-decrypt signal that controls a decryptor.	Page 291 lines 9-20.	In the interval between said commence-enabling time and said 8:30 PM time, said head end is caused, in a predetermined fashion, to transmit a particular enabling SPAM message that consists of a "01" header, execution segment information that matches said enable-next-program-on-CC13 information, particular meter-monitor information, information segment information of particular enable-CC13 instructions and particular enable-WSW instructions that include particular enable-WSW-programming information, and an end of file signal on the frequency of said master control channel. (Hereinafter said message is called the "local-cable-enabling-message (#7).")
	Page 294 lines 30-35.	Executing the instructions of said portion causes controller, 20, in the predetermined fashion of the said portion, to cause selected apparatus of the station of Fig. 4 to receive the cable channel 13 transmission, to cause selected apparatus to decrypt the audio portion of said transmission.
	Page 295 line 30 to page 296 line 3.	Automatically, controller, 20, selects information of cipher key Ca from among the information of said portion; transfers said cipher key information to decryptor, 107; and causes decryptor, 107, to commence decrypting its received audio information, using said key information and selected decryption cipher algorithm C, and outputting decrypted information of the audio portion of the "Wall Street Week" program transmission to matrix switch, 258.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-how-to-decrypt signal that controls a decryptor.	Column 13 lines 1-4.	Figures 4A through 4E illustrate methods for governing the reception of programing and the use of signal processor apparatus in these methods.

19. Claim 20

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-coordinate signal that coordinates a multimedia presentation.	Page 59 lines 29-33,	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
	with, page 311 lines 10-16.	In due course, at said 8:30 PM time, said program originating studio commences transmitting the programming information of said "Wall Street Week" program, thereby causing the apparatus of the station of Fig. 4 (and of other correctly regulated and connected stations) to commence functioning in the fashions described above in "One Combined Medium" and in examples #1, #2, #3, and #4.
	Page 143 lines 6-11.	OPERATING SIGNAL PROCESSOR SYSTEMS ... EXAMPLE #2 In example #2, the first and third messages of the "Wall Street Week" combining are transmitted just as in example #1, but the second message is partially encrypted. The second message conveys the second combining synch command.
	Page 151 lines 26-33.	At microcomputer, 205, (and at the URS microcomputers, 205, at other stations where

		the second message of example #2 is decrypted) in the fashion described in example #1, said information, which is the unencrypted binary information of the second combining synch command, executes "GRAPHICS ON" causing microcomputer, 205, to combine the programming of Fig. 1A and of Fig. 1B and transmit said combined programming to monitor, 202M, where Fig. 1C is displayed. (Hereinafter, an instruction such as the above signal of "GRAPHICS ON" that causes subscriber station apparatus to execute a combining operation in synchronization is called a "combining synch command."
	Page 26 lines 20-23.	

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-coordinate signal that coordinates a multimedia presentation.	Column 19 line 30; and column 19 line 59 to column 20 line 2.	Co-ordinating Multimedia Presentations in Time Then the host says, "And here is what your portfolio did." At this point, an instruction signal is generated in the television studio originating the programing and is transmitted in the programing transmission. This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

20. Claim 21

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed	Page 59 lines 29-33,	A SPAM message is the modality whereby the original transmission station that originates said message controls specific

processor control signal is an instruct-to-generate signal that generates information that supplements said programming.		addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
	with page 311 lines 10-16.	In due course, at said 8:30 PM time, said program originating studio commences transmitting the programming information of said "Wall Street Week" program, thereby causing the apparatus of the station of Fig. 4 (and of other correctly regulated and connected stations) to commence functioning in the fashions described above in "One Combined Medium" and in examples #1, #2, #3, and #4.
	Page 197 lines 11-16.	OPERATING SIGNAL PROCESSOR SYSTEMS ... EXAMPLE #4 In example #4, the first and second messages are both partially encrypted, and the combining of Fig. 1A and Fig. 1B information occurs only at selected subscriber stations where the information of said messages causes decrypting and collecting of meter information as well as combining.
	Page 221 lines 28-32,	As described in "One Combined Medium" above, running said program instruction set causes microcomputer, 205, (and URS microcomputers, 205, at other subscriber stations) to place appropriate Fig. 1A image information at particular video RAM
	with page 26 lines 8-11.	TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.
	Page 25 lines 33-34;	Then the host says, "And here is what your portfolio did."
	with column 26 lines 8-10.	TV monitor, 202M, then displays ... the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language

The method of claim 2, wherein said received and processed processor control signal is an instruct-to-generate signal that generates information	Column 19 lines 45-50..	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
that supplements said programming.	Column 19 lines 59-60,	Then the host says, "And here is what your portfolio did."
	and, column 19 line 67 to column 20 line 1.	The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

21. Claim 22

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-generate signal that generates information that completes said programming.	Page 59 lines 29-33,	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
	with page 311 lines 10-16.	In due course, at said 8:30 PM time, said program originating studio commences transmitting the programming information of said "Wall Street Week" program, thereby causing the apparatus of the station of Fig. 4 (and of other correctly regulated and connected stations) to commence functioning in the fashions described above in "One Combined Medium" and in examples #1, #2, #3, and #4.
	Page 197 lines 11-16.	OPERATING SIGNAL PROCESSOR SYSTEMS ... EXAMPLE #4 In example #4, the first and second messages are both partially encrypted, and the combining of Fig. 1A and Fig. 1B information occurs only at selected subscriber stations

		where the information of said messages causes decrypting and collecting of meter information as well as combining.
	Page 221 lines 28-32,	As described in "One Combined Medium" above, running said program instruction set causes microcomputer, 205, (and URS microcomputers, 205, at other subscriber stations) to place appropriate Fig. 1A image information at particular video RAM
	with page 26 lines 8-11.	TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said received and processed processor control signal is an instruct-to-generate signal that generates information	Column 19 lines 45-50..	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
that completes said programming.	Column 19 line 67 to column 20 line 2.	The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

22. Claim 23

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-to-activate signal that	Page 303 lines 19-23,	In due course, but still before said 8:30 PM time, said program originating studio commences transmitting analog television information on its transmission frequency and embeds and transmits particular SPAM

controls a switch or inputs power to an apparatus.		message information on lines 20, 21, 22, 23, 24, 25, 26, and 27.
	and page 304 lines 10-11.	(Hereinafter, each of said SPAM messages is called a "2nd- WSW-program-enabling-message (#7).")
	Page 443 lines 19-28.	Executing said additional 2nd-stage-enable-WSW-program instructions at the station of Fig. 7 causes controller, 20, first to cause the apparatus of said station to commence transferring the decrypted television information of the "Wall Street Week" program transmission to decoder, 203, and microcomputer, 205. Automatically, controller, 20, causes matrix switch, 258, to cease inputting the decrypted video information of said transmission to signal processor, 200, (at switch, 1), and to commence transferring said video information
	Page 444 lines 23-26.	At the station of Fig. 7, executing said additional 2nd-stage-enable-WSW-program instructions causes controller, 20, thereafter to cause the apparatus of said station to determine that monitor, 202M,
	Page 445 lines 6-8,	Receiving said 202M-is-not-on information causes controller, 20, under control of said additional 2nd-stage- enable-WSW-program instructions,
	and lines 24-25.	...to switch power on to monitor, 202M,....

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-to-activate signal that controls a switch or inputs power to an apparatus.	Column 19 lines 14-15;	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 27-28.	and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."

23. Claim 24

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-to-enable signal that causes a transfer device to transfer a signal to an output device.	Page 303 lines 19-23.	In due course, but still before said 8:30 PM time, said program originating studio commences transmitting analog television information on its transmission frequency and embeds and transmits particular SPAM message information on lines 20, 21, 22, 23, 24, 25, 26, and 27.
	Page 304 lines 10-11.	(Hereinafter, each of said SPAM messages is called a "2nd- WSW-program-enabling-message (#7).")
	Page 309 line 30 to page 310 line 8.	...the controller, 20, of the station of Fig. 4 (and causes controllers, 20, at other stations where so determining occurs) to execute particular additional 2nd-stage-enable-WSW-program instructions, and executing said instructions causes controller, 20, to cause the apparatus of the station of Fig. 4 to commence transferring the decrypted television information of the "Wall Street Week" program to microcomputer, 205, and monitor, 202M. Automatically, controller, 20, causes matrix switch, 258, to transfer the decrypted audio information inputted from decryptor, 107, to monitor, 202M, thereby causing monitor, 202M, to commence receiving said audio information and emitting sound in accordance with said audio information.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-to-enable signal that causes a transfer device to transfer a signal to an output device.	Column 19 lines 14-15;	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 24-29.	Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video

		recorder, 217, on and record "Wall Street Week," and also microcomputer, 205, may instruct switch, 216, to turn TV set, 202, on and tuner, 215, to tune appropriately to "Wall Street Week."

24. Claim 25

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-how-to-decrypt signal that controls a decryptor.	Page 291 lines 9-20.	In the interval between said commence-enabling time and said 8:30 PM time, said head end is caused, in a predetermined fashion, to transmit a particular enabling SPAM message that consists of a "01" header, execution segment information that matches said enable-next-program-on-CC13 information, particular meter-monitor information, information segment information of particular enable-CC13 instructions and particular enable-WSW instructions that include particular enable-WSW-programming information, and an end of file signal on the frequency of said master control channel. (Hereinafter said message is called the "local-cable-enabling-message (#7).")
	Page 294 lines 30-35.	Executing the instructions of said portion causes controller, 20, in the predetermined fashion of the said portion, to cause selected apparatus of the station of Fig. 4 to receive the cable channel 13 transmission, to cause selected apparatus to decrypt the audio portion of said transmission
	Page 295 line 30 to page 296 line 3.	Automatically, controller, 20, selects information of cipher key Ca from among the information of said portion; transfers said cipher key information to decryptor, 107; and causes decryptor, 107, to commence decrypting its received audio information, using said key information and selected decryption cipher algorithm C, and outputting decrypted information of the audio portion of the "Wall Street Week" program transmission to matrix switch, 258.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is **an instruct-how-to-decrypt signal** that controls a decryptor.	Column 13 lines 27-29; and lines 1-4.	The signal or signals may also inform decrypter/interrupter, 101, how to decrypt or interrupt the programing if decrypter/ interrupter, 101, is capable of multiple means. Figures 4A through 4E illustrate methods for governing the reception of programing and the use of signal processor apparatus in these methods.

25. Claim 26

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is **an instruct-to-coordinate signal** that coordinates a multimedia presentation.	Page 59 lines 29-33, with, page 311 lines 10-16. Page 26 lines 20-23.	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages. In due course, at said 8:30 PM time, said program originating studio commences transmitting the programming information of said "Wall Street Week" program, thereby causing the apparatus of the station of Fig. 4 (and of other correctly regulated and connected stations) to commence functioning in the fashions described above in "One Combined Medium" and in examples #1, #2, #3, and #4. (Hereinafter, an instruction such as the above signal of "GRAPHICS ON" that causes subscriber station apparatus to execute a combining operation in synchronization is called a "combining synch command."

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said processor control signal is an instruct-to-coordinate signal that coordinates a multimedia presentation.	Column 19 line 30. Column 19 line 64 to column 20 line 2.	Co-ordinating Multimedia Presentations in Time This signal is identified by decoder, 203, and transferred via processor, 204, to microcomputer, 205. This signal instructs microcomputer, 205, to transmit the first overlay to TV set, 202, for as long as it receives the same instruction signal from processor, 204. The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

26. Claim 27

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said information supplements said television programming and said processor control signal is an instruct-to-generate signal that generates said information.	Page 26 lines 8-10, with page 25 lines 33-34, and page 24 line 14 to 25 line 6.	TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic. Then the host says, "And here is what your portfolio did." (Hereinafter, such a set of instructions that is loaded and run is called a "program instruction set.") In a fashion well known in the art, microcomputer, 205, loads the received binary information of said set at a designated place in RAM until, in a predetermined fashion, it detects the end of said set, and it executes said set as an assembled, machine language program in a fashion well known in the art. Under control of said program instruction set and accessing the subscriber's contained portfolio data file for information in a fashion well known in the art, microcomputer, 205, calculates the performance of the subscriber's stock portfolio and constructs a graphic

		image of that performance at the installed graphics card. The instructions cause the computer, first, to determine the aggregate value of the portfolio at each day's close of business by accumulating, for each day, the sum of the products of the number of shares of each stock held times that stock's closing price. The instructions then cause microcomputer, 205, to calculate the percentage change in the portfolio's aggregate value for each business day of the week in respect to the final business day of the prior week. Then in a fashion well known in the art, the instructions cause microcomputer, 205, to enter digital bit information at the video RAM of the graphics card in a particular pattern that depicts the said percentage change as it would be graphed on a particular graph with a particular origin and set of scaled graph axes.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said information supplements said television programming and said processor control signal is an instruct-to-generate signal that generates said information.	Column 19 lines 45-50..	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
	Column 19 lines 59-60,	Then the host says, "And here is what your portfolio did."
	and, column 19 line 67 to column 20 line 1.	The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

27. Claim 28

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said information completes said television programming and said processor control signal is an instruct-to-generate signal that generates said information.	Page 59 lines 29-33,	A SPAM message is the modality whereby the original transmission station that originates said message controls specific addressed apparatus at subscriber stations. The information of any given SPAM transmission consists of a series or stream of sequentially transmitted SPAM messages.
	with page 311 lines 10-16.	In due course, at said 8:30 PM time, said program originating studio commences transmitting the programming information of said "Wall Street Week" program, thereby causing the apparatus of the station of Fig. 4 (and of other correctly regulated and connected stations) to commence functioning in the fashions described above in "One Combined Medium" and in examples #1, #2, #3, and #4.
	Page 197 lines 11-16.	OPERATING SIGNAL PROCESSOR SYSTEMS ... EXAMPLE #4 In example #4, the first and second messages are both partially encrypted, and the combining of Fig. 1A and Fig. 1B information occurs only at selected subscriber stations where the information of said messages causes decrypting and collecting of meter information as well as combining.
	Page 221 lines 28-32,	As described in "One Combined Medium" above, running said program instruction set causes microcomputer, 205, (and URS microcomputers, 205, at other subscriber stations) to place appropriate Fig. 1A image information at particular video RAM
	with page 26 lines 8-11.	TV monitor, 202M, then displays the image shown in Fig. 1C which is the microcomputer generated graphic of the subscriber's own portfolio performance overlaid on the studio generated graphic.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 5, wherein said	Column 19 lines 45-50..	When the "Wall Street Week" transmission begins at 8:30 PM on a Friday evening, several

information completes said television programming and said processor control signal is an instruct-to-generate signal that generates said information.		instruction signals are identified by decoder, 203, and transferred to microcomputer, 205. These signals instruct microcomputer, 205, to generate several graphic video overlays, which microcomputer, 205, has the means to generate and transmit and TV set, 202, has the means to receive and display, and to transmit these overlays to TV set, 202, upon command.
	Column 19 line 67 to column 20 line 2.	The viewer then sees a microcomputer generated graphic of his own stocks' performance overlay the studio generated graphic.

28. Claim 29

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein programming is associated with said television program and said event signal communicated from said receiver station comprises an identification of said programming.	Page 428 lines 21-26.	The program-unit-of-interest information preprogrammed at the microcomputer, 205, of the station of Figs. 7 and 7C includes particular specific-WSW information that reflects the wish of the subscriber of said station to view (or record) said "Wall Street Week" program when said program is transmitted.
	Page 436 lines 24-33.	Executing said determine-whether-to-select instructions causes microcomputer, 205, to input said please-fully-enable-WSW-on-CC13-at-particular-8:30 information to the controller, 20, of signal processor, 200. Said instructions contain one instance, and the the aforementioned program-unit-of-interest information that is preprogrammed at said microcomputer, 205, contains a second instance of specific-WSW information, which second instance reflects the wish of the subscriber of said station to view (or record) said "Wall Street Week" program when said program is transmitted.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language

The method of claim 2, wherein programming is associated with said television program and said event signal communicated from said receiver station comprises an identification of said programming.	Column 19 lines 5-8 ,	In another example, microcomputer, 205 may be preinformed that a certain television program, hypothetically "Wall Street Week," should be televised on TV set, 202, when it is cablecast.
	lines 12-14	Microcomputer, 205, instructs signal processor, 200, to pass all program and channel identifiers on all programing being cablecast on the multi-channel system.
	and lines 23-25.	Then, in a predetermined fashion, microcomputer, 205, may instruct tuner, 214, to switch box, 201, to channel X and may instruct control system, 220, to turn video recorder, 217, on and record "Wall Street Week."

29. Claim 30

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said event signal communicated from said receiver station comprises a viewership statistic.	Page 88 lines 19-22.	In addition, monitor information is processed at selected stations for one or more so-called "ratings" agencies (such as the A. C. Nielsen Company) that collect statistics on viewership and programming usage.
	Page 311 lines 3-6.	thereby incrementing the information of the aforementioned meter record that records the decryption of the program transmission of the "Wall Street Week" program originating studio;

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said event signal communicated from said receiver station comprises a viewership statistic.	Same as step (2), plus, column 3 lines 66-67,	The method provides monitoring techniques to develop data on patterns of viewership....
	and column 15 lines 26-32.	Methods for Monitoring Reception and Operation Figure 5 illustrates methods for monitoring reception and operation which methods can

		be used to gather statistics on programing usage and associated uses of other data transmissions and equipment. Such statistics are necessary, for example, in the development of television program ratings.
	Page 18 lines 30-38.	TV signal decoder, 203, and radio signal decoder, 211, also identify certain signals that monitors or processors, 204 and 210 respectively, determine to identify the programs, etc. on the channels to which TV set, 202, and radio, 209, are tuned, The processors, 204 and 210, transfer this information to signal processor, 200, for recording and subsequent transmission to a remote data collection site.

30. Claim 31

Support to the 1987 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said event signal communicated from said receiver station comprises a query for information related to a portfolio of subscriber data.	Page 312 lines 6-8.	...from processing embedded SPAM combining synch commands and may interrogate remote station apparatus, by telephone, for cipher key and/or cipher algorithm instructions and information.
	Page 436 lines 23-26.	Executing said determine-whether-to-select instructions causes microcomputer, 205, to input said please-fully-enable-WSW-on-CC13-at-particular-8:30 information to the controller, 20, of signal processor, 200.
	Page 448 lines 4-13.	In actuality, the process of controlling computer- based combined media operations is continuous and involves systematic inputting and maintaining of up-to-date user specific data at each subscriber station. (For example, only at subscriber stations where user specific stock data is maintained systematically and up-to-date can the program instruction set of the first message of the "Wall Street Week" example generate Fig. 1A images that actually show the performance of the portfolios of the subscribers of said stations.)

	Page 534 lines 4-13.	Particular farm information of the specific farm of each farmer is recorded in a file named MY_FARM.DAT on a disk at the A: disk drive of the microcomputer, 205, of each station. The recorded data includes, for example, data of the number and size of the individual parcels of property of the farmer's farm, the soil conditions of said parcels, the aspects of said parcels with respect to sunlight and shade, the history of crop rotation of said parcels, the farm equipment of said farmer, and the financial resources of said farmer.

Support to the 1981 specification.

Claim Language	Spec. Reference	Specification Language
The method of claim 2, wherein said event signal communicated from said receiver station comprises a query for information related to a portfolio of subscriber data.	Column 19 lines 37-41.	It may receive these directly or it may automatically query a data service for them in a predetermined fashion. It records those prices that relate to the stocks in its stored portfolio.

31. Conclusion

Applicants respectfully submit that claims 2-31 and amended claim 5, 11 and 12 of the subject application particularly point out and claim the subject matter sufficiently for one of ordinary skill in the art to comprehend the bounds of the claimed invention. The test for definiteness of a claim is whether one skilled in the art would understand the bounds of the patent claim when read in light of the specification, and if the claims so read reasonably apprise those skilled in the art of the scope of the invention, no more is required. *Credle v. Bond*, 25 F.3d 1556, 30 USPQ2d 1911 (Fed. Cir. 1994). The legal standard for definiteness is whether a claim reasonably apprises those of skill in the art of its scope. *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994).

Applicants have amended the claims to enhance clarity and respectfully submit that all pending claims are fully enabled by the specification and distinctly indicate the metes and bounds of the claimed subject matter.

D. Support for Previous Amendment of "signal words" to "signal units"

During the interview of July 15th, 1999, the Examiners requested Applicants to demonstrate that no new matter was introduced into the specification in the amendment entered on October 21, 1998 which changed the following language in the specification on page 37 lines 22-25:

> "Controller, 39, 44, or 47, is preprogrammed to receive [units] words of signal information, to assemble said [units] words into signal [words] units that subscriber station apparatus can receive and process, and to transfer said [words] units to said apparatus."

Applicants submit that this amendment was merely made to correct a typographical mistake on their part. Additionally, specification support to verify the necessity of the amendment is found in the following language from page 14 lines 22-35.

> In all cases, signals may convey information in discrete words, transmitted at separate times or in separate locations, that receiver apparatus must assemble in order to receive one complete instruction.
>
> (The term "**signal unit** " hereinafter means one complete signal instruction or information message unit.... The term "**signal word**" hereinafter means one full discrete appearance of a signal as embedded at one time in one location on a transmission....) *Emphasis added.*

From the above language, a "**signal unit**" is "one complete signal instruction or information message unit." *Words* of signal information are received and assembled into *signal units*, or completed instructions, for the subscriber station apparatus to receive, process and transfer. Thus, it should be

clear from this passage that no new matter was introduced with the amendment and Applicants urge the PTO to maintain and/or enter the previous amendment as appropriate under 37 C.F.R. § 1.118 (a).

E. Prior art anticipation by Campbell et al., U.S. Pat. No. 4,536,791

The examiner of record indicates that Applicants claims are anticipated by Campbell et al. The following sections, categorized by each independent claim, will demonstrate how Campbell et al. fails to anticipate Applicants' claim language.

U.S. Patent No. 4,536,791 to Campbell et al. relates to addressable cable television control systems with a video formatted data transmission. Campbell et al. discloses an addressable cable television control system that transmits a television program and data signal transmission from a central station to a plurality of remote user stations. Campbell et al.'s data signals include both control and text signals in video line format that are inserted on the vertical interval of the television signals. An intelligent converter at each remote user location processes the data signals to enable controlled descrambling of the television transmission to the system on the basis of channel, tier of service, special event and program subject matter. The converter includes apparatus for interfacing with a two-way interactive data acquisition and control system.

Campbell et al. teaches a head end station that includes a central data system utilizing a control computer that gathers data from a wide variety of sources and formats the data for transmission on video frequency channels. The formatted data is then transmitted by communication link to a television program processor where it is incorporated into the vertical blanking intervals of video signals by a variety of television program sources. The head end unit then transmits the combined cable television and data signal to remote subscribers.

Normally, the signals are then transmitted through a cable network to a plurality of subscribers. The signals are received by an addressable converter that determines whether to descramble the received television signal based on proper subscriber, event and eligibility data stored at the receiver station, or to leave the signal in its scrambled format.

1. Independent Claim 2

With respect to Applicants' claim 2, Campbell et al. fails to teach, *inter alia*,

one of programming and reprogramming, on the basis of said transmitted operating instructions, said receiver station *to respond in a predetermined fashion to said processor control signal;*

causing said receiver station to receive and output said *programming in accordance with said processor control signal.*

As best Applicants understand, the Examiner of record interprets Campbell et al. to suggest that the two-way pay-per-view function includes operating instructions transmitted in response to an event signal. However, claim 2 sets forth that, on the basis of the operating instructions, the receiver station is programmed or reprogrammed to respond to a processor control instruction. Campbell et al. fails to teach any programming or reprogramming of a receiver station on the basis of operating instructions as defined by claim 2. Claim 2 also sets forth causing said receiver station to receive programming in accordance with said processor control signal. Campbell et al. fails to teach causing a receiver station *to receive* programming in accordance with processor control signals as set forth in claim 2. Applicants respectfully submit that Campbell et al. does not anticipate claim 2 since the reference fails to disclose every element of the claimed invention. Therefore, Applicants request the claim be permitted to issue.

Claims 3, 4, 16-22 & 29-31 depend upon independent claim 2. As discussed *supra*, Campbell et al. fails to disclose every element of claim 2 and thus, *ipso facto*, Campbell et al. fails to anticipate dependent claims 3, 4, 16-22 & 29-31. Therefore, Applicants request that claims 3, 4, 16-22 & 29-31 be permitted to issue.

2. Independent Claim 5

With respect to Applicants' claim 5, Campbell et al. fails to teach, *inter alia*, ***controlling, in accordance with said operating instructions, said receiver station to receive and output one of said television programming and information that is associated with said television programming.***

As best Applicants understand, the Examiner of record interprets Campbell et al. to suggest that the two-way pay-per-view function includes control codes equivalent to Applicants' operating instructions set forth in claim 5. However, claim 5 sets forth controlling, in accordance with the operating instructions, the receiver station to receive either television programming or information associated with said television programming. Campbell et al. fails to teach operating instructions, received in response to inputted subscriber reaction, in accordance with the receiver station, to control to receive television programming or information.

Applicants respectfully submit that Campbell et al. does not anticipate claim 5 since the reference fails to disclose every element of the claimed invention. Therefore, Applicants request the claim be permitted to issue.

Claims 6 & 23-28 depends upon independent claim 5. As discussed *supra*, Campbell et al. fails to disclose every element of claim 5 and thus, *ipso facto*, Campbell et al. fails to anticipate dependent claims 6 & 23-28. Therefore, Applicants request that claims 6 & 23-28 be permitted to issue.

3. Independent Claim 7

With respect to Applicants' claim 7, Campbell et al. fails to teach, *inter alia,*

receiving, from said receiver station, *at said at least one remote data source, a query* for one of (i) *a function associated with said television programming* and (ii) *said data;*

transmitting, from said at least one remote data source to said receiver station, in response to said step of receiving, ***an instruct signal*** which is *effective at said receiver station* ***to cause said receiver station to store operating instructions*** at a storage device that is associated with a processor;

transmitting, from said at least one remote data source to said receiver station, ***a signal which controls said receiver station to process said operating instructions.***

As best Applicants understand, the Examiner of record interprets Campbell et al. to suggest that the two-way pay-per-view function includes a converter request equivalent to the query set forth in claim 7 and also includes control codes equivalent to the instruct signals set forth in claim 7. However, claim 7 sets forth receiving a query for either a function associated with a television programming or data. Campbell et al. fails to teach that the converter requests either a function or data. Campbell et al., therefore, fails to teach a query as set forth by claim 7. Claim 7 also sets forth transmitting an instruct signal effective to store operating instructions at a storage device associated with a processor. Campbell et al. fails to teach any operating instructions stored by instruct signals. Likewise, claim 7 sets forth transmitting a signal that controls the receiver station to process the operating instructions. Campbell et al. fails to teach any signal that controls the receiver station to process such operating instructions.

Applicants respectfully submit that Campbell et al. does not anticipate claim 7 since the reference fails to disclose every element of the claimed invention. Therefore, Applicants request the claim be permitted to issue.

4. Independent Claim 8

With respect to Applicants' claim 8, Campbell et al. fails to teach, *inter alia,*

said *remote intermediate data transmitter station* adapted to (i) detect the presence of at least one control signal, ***said at least one control signal operating at said remote intermediate data transmitter station to control communication of said at least one instruct signal,*** (ii) to *control the communication* of said at least one instruct signal *in response to said detected at least one control signal;*

receiving said at least one instruct signal at said ***at least one origination transmitter station;***

delivering said at least one instruct signal *to at least one origination transmitter;*

receiving said *at least one control signal* at said ***at least one origination transmitter station;*** and

delivering said at least one control signal *to said at least one origination transmitter* before a specific time.

As best Applicants understand, the Examiner of record interprets Campbell et al. to suggest that the head end station is equivalent to the remote intermediate transmitter station as presently set forth and that the addressable converter is equivalent to the receiver station as presently set forth. Campbell et al. fails to provide any details regarding an origination transmitter station. Claim 8 set forth receiving said at least one instruct signal at said at least one *origination transmitter station;* delivering said at least one instruct signal to at least one *origination transmitter;* receiving said at least one control signal at said at least one

origination transmitter station; and delivering said at least one control signal to said at least one *origination transmitter* before a specific time. Campbell et al. fails to teach any of these steps at an origination transmitter station.

Applicants respectfully submit that Campbell et al. does not anticipate claim 8 since the reference fails to disclose every element of the claimed invention. Therefore, Applicants request the claim be permitted to issue.

Claims 9 & 10 depends upon independent claim 8. As discussed *supra*, Campbell et al. fails to disclose every element of claim 8 and thus, *ipso facto*, Campbell et al. fails to anticipate dependent claims 9 & 10. Therefore, Applicants request that claims 9 & 10 be permitted to issue.

5. Independent Claim 11

With respect to Applicants' claim 11, Campbell et al. fails to teach, *inter alia*,

delivering said instruct signal to a transmitter at said transmitter station, ***said instruct signal being effective at said at least one of said plurality of receiver stations to store said operating instructions;***

receiving, at said transmitter station, an identifier that designates one of said instruct signal and said subscriber reaction to said offer communicated in said mass medium program.

As best Applicants understand, the Examiner of record interprets Campbell et al. to suggest that the control signals inserted in the television signals are equivalent to the instruct signal set forth in claim 11. However, claim 11 sets forth that the instruct signal is effective to store operating instructions. Campbell et al. fails to teach any control signal that is effective to store operating instructions. Claim 11 also sets forth an identifier that designates either the

instruct signal or a subscriber reaction to an offer communicated in a mass medium program. Campbell et al. fails to teach any such identifier.

Applicants respectfully submit that Campbell et al. does not anticipate claim 11 since the reference fails to disclose every element of the claimed invention. Therefore, Applicants request the claim be permitted to issue.

Claim 12-15 depends upon independent claim 11. As discussed *supra*, Campbell et al. fails to disclose every element of claim 11 and thus, *ipso facto*, Campbell et al. fails to anticipate dependent claims 12-15. Therefore, Applicants request that claims 12-15 be permitted to issue.

Applicants further respectfully submit that claims 2-31 in the present application should be permitted to issue because these methods are not disclosed, taught, suggested, or implied by the applied prior art. For a prior art reference to anticipate in terms of 35 U.S.C. § 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Foundation v. Genetech, Inc.*, 927 F.2d 1565, 18 USPQ2d 1001, 18 USPQ2d 1896 (Fed. Cir. 1991). Absence from a cited reference of any element of a claim negates anticipation of that claim by the reference. *Kloster Speedsteel AB v Crucible, Inc.*, 230 USPQ 81 (Fed. Cir. 1986), *on rehearing*, 231 USPQ 160 (Fed. Cir. 1986).

III. CONCLUSION

In accordance with the foregoing it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. Further, all pending claims are patentably distinguishable over the prior art of record, taken in any proper combination. Thus, there being no further outstanding objections or rejections, the application is submitted as being in a condition for issuance, which action is earnestly solicited.

If the Examiner has any remaining informalities to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such informalities.

Respectfully submitted,

Date: October 4, 1999
HOWREY & SIMON
1299 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

Thomas J. Scott, Jr.
Reg. No. 27,836
Attorneys for Applicants
Tel: (202) 955-1685